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The Journal of the American Medical Profession

Vitamin B Deficiencies in Children

The Histology of Muscle Fiber

Periodontal Disease a Focal Factor

Medical Book News Editorials

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EDITORIALS

Medicine's Own Pearl Harbor

ORGANIZED machinery for early case-finding is the key to successful therapy in pulmonary tuberculosis. Practicing physicians and public health authorities in many localities are becoming increasingly conscious of their obligations and opportunities in this field. They would be much strengthened in their convictions regarding the curability of early lesions if they possessed a greater realization of the unique value of phrenic nerve operations, rather than pneumothorax, in the presence of minimal infection.

In view of the recent recrudescence of tuberculosis as a community problem in connection with all-out defense and offense effort, it behooves us to consider more seriously the Detroit demonstration by Dr. Edward J. O'Brien *et al.* as to the part that phrenic nerve operations (plus in certain cases scaleniotomy) can play in solving the municipal hospital problem. As to Detroit, a city one-fourth the size of New York, about fifty-four times as many phrenic nerve operations have been done in the former as in the latter. There is enormous significance for us in these figures, for the TB death rate has been sent tumbling down (680 deaths in 1941, a drop of about fifty per cent compared with 1925; death rate in 1941 40.8). Obviously, Detroit has a grip on things that is lacking elsewhere.

Detroit, of course, goes in for Potter's miniature x-ray films on a wholesale scale (they cost 4.7 cents each) and brings to bear upon the problem all modern resources in the way of bed rest, fresh air, vitamin K, and good food. Hospital beds, instead of caring for long-term dying patients, are saving the city millions of dollars. The City Council is sold on the proposition.

In our June, 1941 issue, we published a discussion of this subject by Dr. Edwin J. Grace (Temporary Phrenic Nerve Operation for Pulmonary Tuberculosis in New York City). Although a highly informative article the matter seems to have rested there.

We must abjure our complacency and become more alert in this field as in the war situation. After all, this is war too, with its own Pearl Harbor and little yellow men to consider. The Tokyo of this battle area is not hard to locate nor impossible to bomb. Let's go.

All-Out Service In An All-Out War

IT is unnecessary to recount the varied channels through which mortality and morbidity have been reduced and the span of life extended.

The spectacular effect of the sulfonamides in disease and in injury is a joy to recount. The number of radical mastoid operations performed has been materially reduced and this improvement is mainly traceable to the efficiency of treatment by the general practitioner, who is, as I have stated in previous communications, a valued asset to the specialist in diagnosis and treatment.

Specialists amidst the present and increasing stress of global war must increasingly realize their imperative obligation to sacrifice their strong personal preferences and their habits of professional life for an all-out service to a heart-rending need.

If life is to be further safeguarded and morbidity further diminished the benefits of medical skill must be bestowed more

generously upon a civil population more in need of generalized than of specialized service.

I cannot be far astray in predicting that within a few months most of the medical profession under the age of forty-five will be in war service. This will place an Atlantean burden upon the practitioners who are left at home, including specialists.

To assume that the necessity for a radical change in the present status does not and may not exist is born of ignorance, selfishness or rationalization. For this imperative all-out service the specialist must realize that his professional life demands additions to his usual labors and efficiency.

The Great Physician cured all manner of diseases by a Materia Medica peculiarly His own. "He saved others; Himself He did not save," was His modus operandi. This we should adopt. As a matter of fact, He did save Himself. So do we save our best selves by increased service.

Professional efficiency is living with one's colleagues happily; and with one's patients serviceably. In these times patients should no longer be those of choice but those in need. To serve these efficaciously calls for special qualifications, among them the courage to undertake a fuller service and prepare for it NOW by an intensive study of the problems of medicine outside of one's chosen specialty; in other words, to share the problems of the general practitioner. If, as predicted, this war continues for several years, its termination will find few, if any, specialists as now constituted.

Granted that there may be but slight modification of most existing specialties, in any all-out effort, the bulk of the specialists must become all-out general practitioners. This places a problem upon special societies as to what modifications they may be forced to make as requirements for new or continued membership in them.

It is too optimistic to hope that one may continue to enjoy the prestige of or the income from an exclusive practice. Community need and interest must increase, even if the contents of the purse decrease.

To overcome the present strongly intrenched position would require little time but much effort. Each practitioner, acting as a standard for himself and in an all-out service to his community, should work with others untrammelled by self-interest and remain untouched by greed or lust for power.

Our unity in an all-out effort in this all-out war would be gratefully applauded by our citizenry. It would add to the illustrious history of our beloved profession. Our sacrifice would be less than the dust in the balance, compared to those who serve our Army and Navy. A united and sacrificial unity with our fighting forces would hearten our entire citizenry and speed an ultimate crushing victory.

This diversified effort would not be along unfamiliar lines but rather an expansion of what we have been trained to do well. To this lofty level in practice Cicero lures us with his solemn asseveration: "Men in no particular approach so nearly to the divine as by giving health to their fellow men."

LE GRAND KERR

One Hundred Miles from a Hospital

THE exercising rather than the immobilization of the paralyzed limbs in poliomyelitis is an interesting reversal of the long orthodox method of treatment. Nothing has been thought of and applied more axiomatically than the latter. The newer method had to evolve and develop in the Australian bush, *one hundred miles from the nearest hospital.*

Japanese Vision and the War

THE idea, said to be held even by some experts in gunnery, that the Japanese are not good marksmen on account of visual peculiarities and that they will therefore give a contemptible performance in actual warfare, does not seem to be much more than wishful thinking. A wide search of ethnological and medical literature reveals very little upon which to base such a conclusion. The Japanese, it is true, are a much bespectacled race, and myopia is classed as a Mendelian recessive trait which finds intensification in the rigidly inbred. However, we must consider not only artifi-

cial correction of remediable defects (a policy which today we are following ourselves, as in the case of the teeth), but the use of mechanical aids to gunnery.

Despite his alleged functional visual asymmetry, his shallow orbit, his eye-slant, his lid and eyelash peculiarities, his myopia, and his weird treatment of movement in painting, all we can suspect is differences in modes of perception and mentality which, nevertheless, leave the Jap a formidable antagonist. The legend of defective eyesight only serves to feed complacent people who tend to substitute pleasant fantasy for realism and action.

A Mystifying Situation

LISTED in the Manhattan and Brooklyn Classified Telephone Directory (the Red Book) are about two hundred chiropractors. Each new issue of the Red Book shows an increment in the number of these people.

Thus a truly amazing situation confronts us in the light of two recent declarations, one by high legal authority and one by the official organ of the Medical Society of the County of New York. From the Attorney General of the State of New York we learn that "any one who, without a license to practice medicine from the State of New York, engages in the practice of chiropractic in this state is guilty of the illegal practice of medicine. This constitutes a misdemeanor." The official organ of the Medical Society makes no bones about characterizing chiropractors as "lawbreakers all."

We confess to mystification on three counts. First, it is our understanding that the purpose of annual reregistration is, or originally was, to facilitate the isolation and prosecution of alleged violators of the Medical Practice Act; fines are imposed if a regular practitioner fails to register and pay the fee within a certain dead line. Second, in view of the Attorney General's position, and assuming its complete validity, are not stronger measures in order than have hitherto been employed? Third, if the status of chiropractors is actually what is alleged, why does the Red Book continue to list them?

Does not the situation described suggest that many cultist breeds may make great inroads and gains in wartime in this country, just as has been the case in Germany since the breakdown of her old educational and medical standards?

TREATMENT OF VITAMIN B DEFICIENCIES IN CHILDREN

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Atlanta, Georgia

Vitamin B deficiencies are more common among children than one would suspect. As a result of the large increase in their body weight and the greater caloric intake young children often manifest disturbances of such nature in their metabolism, and this results in many undiagnosed deficiencies of the vitamin B complex. It is not uncommon, also, to see mild symptoms of vitamin B deficiencies in breast fed children whose mothers' diet, both antenatally and postnatally, lacks certain factors of the vitamin B complex.

While true cases of pellagra do not manifest themselves very often as such, mild forms of this disease, that is, prepellagric cases, are seen in communities where pellagra is common among the adult population.

Spies and others have demonstrated this condition in Alabama and other Southern States where the studies were made along

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these lines. Poor diet is, of course, one of the primary reasons for deficiencies of this nature in young infants and children. The average American diet may be excellent as far as the caloric intake is concerned, and at the same time poor in many factors which lead to vitamin deficiency. Parents who feed their children on diets which are excessive in carbohydrates and fats will not only themselves suffer from such a deficiency, but will add to the burden of the resultant improper development and nutrition in their offspring.

We know, for instance, that many vegetables, and especially potatoes, are a poor source of vitamin B_1. On the other hand, the germ portion of seeds is rich in vitamin B_1. This is also true of legumes, nuts and whole grain. Refined cereals and flour lack this vitamin, while eggs, muscle meat and organ meat, especially chicken and pork, are good sources of vitamin B_1. The addition of milk to the diet adds a source of vitamin B_1 on account of the quantity of intake of this food.

Cooking causes, many times, a loss of many of the factors of the vitamin B complex and it is important that in outlining a diet for a child proper advice as to heating and cooking should be given. It is also known that the liquids which are many times poured off from the pan contain more of the vitamin factors than the food that is being used to serve the daily meals.

One cannot treat the vitamin B deficiency as one would vitamin D or C deficiencies. That is due to the fact, and it has been proved by many, that in all cases of vitamin B deficiencies there is no one factor involved, but rather all factors should be considered in each case. For that reason, I would like to outline the following method of treating all cases of vitamin B deficiencies:

I. *(a)* The education of the laity, as well as the profession, as to food values, vitamin B foods and the many dietary habits of the people, holds a primary place.

(b) The preparation of foods cannot be stressed too much. That means that one should know how much of the vitamin B complex is lost in transporting, cooking or freezing. Is it better to eat many of these foods raw, or is their vitamin B value injured through the process of cooking or freezing?

(c) The caloric value of the diet in most of these cases should be at least from 1,500 to 3,000 calories a day.

(d) The diet should have at least one quart of milk daily, beef juice, lean meat, liver and all properly prepared fresh vegetables.

(e) In mild cases proper diet, in addition to brewer's dried powdered yeast, may be sufficient to correct the deficiency. It must be emphasized that the yeast be dry. Moist cakes of yeast are not suitable in these cases. The yeast tablets are of little value because they contain so little yeast. The dosage of the dried powdered yeast should be one-half of one ounce for children up to six years of age and two ounces for children from six years of age to puberty. The daily doses should be given in such a way as to make the yeast more palatable. The yeast may be stirred into milk, tomato juice, table syrup, sprinkled on cooked foods or stirred into eggnogs.

II. In severe cases the above directions will not suffice. Sterner measures must be used and the following is an outline of what is needed in addition to the suggestions in section I:

(a) Nonhemopoietic liver extract should be given in very large doses, intramuscularly, of from 5 to 10 cc. or more. Orally, it may be given in the form of liver purée.

(b) Nicotinic acid, which is the true anti-pellagric factor, may be given in a dosage of 15 milligrams per kilogram of body weight daily. The dosage may be divided into four or six portions and given through the day. Since children do not take tablets or capsules easily nicotinic acid may be given in the form of an elixir. In all severe cases the antipellagric must be administered intramuscularly or intravenously.

(c) Regardless of whether nicotinic acid brings immediate results one must, in all cases, add riboflavin in the treatment of the vitamin B deficiencies. It has been shown by Sydenstricker, Spies and others

that patients may improve under nicotinic acid treatment and yet show other signs proving that ariboflavinosis is also present, even in cases of true pellagra. The dosage of riboflavin for children is about 400 units a day. If 2,000 calories are consumed daily the dosage may be divided and given as 20 units per 100 calories consumed.

(d) The addition of thiamin chloride is of importance in all vitamin B deficiencies. While this factor may be given in the form of tablets, it is best in severe cases to give it subcutaneously. The dosage may be from 10 to 50 milligrams a day.

(e) Vitamin B_6 is found to some extent in the yeast extract, but in severe cases of vitamin B deficiencies it should be added to the daily routine. The dosage is about 30 milligrams a day.

(f) It is surprising to see how many patients having an inadequate diet also suffer from inadequacy of vitamin C intake. If these patients are not nauseated they can certainly get a sufficient amount of it from any fresh vegetables, orange juice or tomato juice and grapefruit juice. When anorexia and nausea persist and vitamin C is not tolerated in liquid form ascorbic acid may be given, either in tablets or subcutaneously. The daily dosage is 10 to 20 milligrams.

(g) Both in the pellagra and prepellagric stages many of these children suffer from marked anorexia, and this symptom may be the outstanding factor in the disease. It is important, for that reason, that these patients be fed small feedings at frequent intervals, in order to insure the retention of a large portion of their diet.

(h) Many of vitamin B deficiency patients suffer not only from the usual involvement of the nervous system, but as has been shown by Schwartzman and others, even Sydenham's chorea may result on account of vitamin B deficiencies. This is due primarily to a deficiency of vitamin B_6 and it should be given freely in order to accomplish a cure.

(i) While sunlight itself does not impair the progress of pellagric patients, the dermatitis does become, sometimes, a great problem, and for that reason they should not be exposed to sunlight until their dermatitis is healed.

Aftercare: With the improvement of the patient it is necessary to discontinue the subcutaneous and intramuscular treatment and, if possible, eliminate, as fast as one can, the administration of the individual factors of the vitamin B complex. He cannot be treated forever in this manner. With slow improvement one must turn again to a proper diet which will insure him both a sufficient amount of caloric intake, and also an ample amount of the different factors of the vitamin B complex. A diet rich in the vitamin B factors should be sufficient, but along with the diet yeast extract should be given for a long time, as these patients are liable to retrogression at any time. Reasonable medical care should be continued and physical check-ups should be constantly carried out. Anemia is very common among these patients and it should be carefully treated with the use of iron in the form of ten per cent solution of iron and ammonium citrate.

Prophylaxis: In communities where proper educational facilities are lacking, as far as the knowledge of food value is concerned, and where a scarcity of food itself prevails, Public Health Service should be established. This should include directions as to proper diet, the service of dieticians, a proper distribution of yeast, and an education of the profession as to the seriousness of these conditions.

Bibliography:

1. Distribution of Vitamin B_1 (Thiamin) in Meat and Meat Products. O. Mickelsen, H. A. Waisman and C. A. Elvehjem, J. Nutrition 17:269 (March) 1939.

2. Effect of Yeast Extract (Vitamin B. Complex) on Growth and Development of Premature Infants. H. R. Litchfield, J. Lichterman, I. Knoll and I. Kurland. Am. J. Dis. of Children, 57:546:553 (March) 1939.

3. Value of an Increased Supply of Vitamin B_1 and Iron in the Diet of Children. P. Summerfeldt, J. R. Ross. Am. J. Dis. of Children, 56:985-988 (November) 1938.

4. Vitamin B_1 and Liver Extract in the Treatment of Non-specific Chronic Diarrhea and Colitis. G. Cheney, Am. J. Digest. Dis. 6:161 (May) 1939.

5. Vitamin B_1 Deficiency in Infancy: A Critical Review. M. R. Price, Arch. Dis. Childhood, 12:213 (August) 1937.

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PERIODONTAL DISEASE AS A SIGNIFICANT FOCAL FACTOR

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EVIDENCES of dental infections associated with pathologic conditions elsewhere in the body have been numerous. In contrast, however, this truth has generally received minor practical application. This is probably due to an uncertain background of inadequate and confused knowledge of the subject involving several factors, namely, locations of the dental sites, determination of specific casuality in the areas, the course in the body, the nature of the affliction in the sequential areas, and related matters. An endeavor will be made in this article so to treat of these factors as to help in their clarification.

As to the occurrence or location of a possible focus in dental structures the common impression prevails among many that the only site is the apical abscess. On this basis removal of the infection should consequently eliminate the distant symptoms. However, in a number of cases the secondary condition is not relieved, or no abscess in fact found. Consequently, the conclusion is too often reached that no dental focus exists, and this source is dismissed without further investigation. This is, nevertheless, an erroneous procedure because a dental focus may still be present but in another part of the dental structures. The common and dominant site, but comparatively little recognized, is that region between the teeth and gingiva where the latter is detached in periodontal disease. This region as a focus is probably more widespread and more detrimental than the apical abscess, which is not invariably injurious and, in many cases, is perhaps made innocuous by encapsulation. Furthermore, the bacteria and toxins in the periodontal pocket are easily and openly in contact with the peridontal lymph and capillaries, and therefore the circulation. Moreover, the mechanical pressure from mastication forces the tooth against its socket to expel bacteria and toxins into the mouth whence some may find their way into the alimentary system. These gingival areas are too frequently overlooked, particularly because the detachment is not usually apparent.

THE exact site of entry of infective matter in the periodontal tissues appears to be in the base of the pocket. On the tooth side of the pocket, the cementum surface is covered usually with salivary and serumal calculi. The other wall of the inner gingiva becomes lined with epithelial cells. Bacteria may lie on the walls but probably do not penetrate these protective surfaces. Only the base remains ulcerated and open where bacteria and their toxins enter the tissues. Beneath the ulcer, an infiltration of leukocytes usually occurs which is evidence of the activity. It seems that the ulcerated base is the vanguard of periodontal destruction, and as it progresses the detached gingiva becomes covered with an epithelial lining as a natural protection. Walled off in this manner, the bacterial attack is limited and compelled to pass mostly on into newly destroyed and opened tissue at the base. This knowledge is necessary for bacterial examination and for treatment as will be seen anon.

Next, the presence of pathogenic microorganisms in the suspected focal site must be determined. The practice of merely assuming that pathogenicity exists in a dental area because disease is simultaneously present in other locations has weakened conviction as to the actuality of the dental structures as foci of infection. Not much more convincing has been the reporting of bacterial specimens as they are found, mixed and undistinguished. This procedure does not determine the existence of any specific pathogenicity of importance. What is required, first, is a classification of bacteria on a basis of pathogenicity:

those micro-organisms that are pathogenic are probably the incitants of disease; the non-pathogenic organisms are likely degenerate forms. Second, any pathogenic micro-organisms present must be isolated for recognition. This is done with cultures by selective isolation of pathogenic types, based on tests of resistance to physical, chemical and other agents; and correlated as far as possible with pathogenic effects on organic tissues. In practice, the tests are used as indicators of pathogenicity. These are based on methods developed by Chapman, Rawles, Stiles *et al.*[1] I have had these tests made on matter from periodontal pockets, and found them valuable. The ability to determine pathogenicity in periodontal pockets contributes significantly in establishing evidence of reasonably specific pathogenicity in periodontal tissues and toward establishing the possibility of focal infection.

SUBSEQUENTLY, the question arises, when pathogenic micro-organisms are present, whether they reach and affect the distant diseased areas seemingly related—and in what manner. This had been the greatest problem of the subject. Bacteria do not seem to pass through the blood and reach, by this course, secondary areas, owing probably to phagocytic resistance. It has been argued that it is not necessarily the micro-organisms that migrate but their exotoxic toxins. Experiments by Ruggier and Chapman[2] shows that the factor causing distant symptoms of disease associated with focal infection is a toxin of pathogenic bacteria producing toxic symptoms in persons whose tissues are sensitized to it.

This concept of focal infection inclines toward the view that inflammation in many cases is caused by the interaction of toxins and sensitized tissue rather than the hypothesis of bacterial bodies passing from primary to distant foci. It may explain the difficulty of recovering bacteria in secondary foci of infection. On the other hand, we do know bacteria are found in intestinal and other related structures which probably originate in the upper parts of the respiratory system and the oral cavity. Griffiths and Chapman have indicated by their researches that bacteria isolated from bile drainage specimens probably originated in the upper respiratory tract.[3] From both these aspects, the suggestion might be entertained that toxins may pass freely through unimmunized blood channels while bacteria might traverse only less resistant tracts.

Notwithstanding, since the comprehension of these conditions in the human body remains incomplete, we must resort to more case studies. In doing so, the reactions in the patients must be closely scrutinized for all suggestions and indications to obtain every elucidation possible.

With this in mind, the following case is reported. In addition, it also indicates significantly many of the foregoing considerations.

Male, sixty-three years of age. Patient found difficulty in walking on left leg due to pain in the hip, and complained of momentary flushes and nausea. As medically reported to me, severe and repeated vertigo in changing positions existed, also fever, excruciating pain from the sacro-iliac joint to the bottom of the heels, and spasms in the gastro-intestinal tract producing intestinal stagnation, while ambulation was severely handicapped due to pain in the sacro-iliac joint.

Dental diagnosis: Patient complained of a general feeling of uncomfortableness in his gums. On examination, some gingivitis and gingival recessions were noticed around many teeth. The upper left molar region appeared acutely inflamed. On probing, the gingivae were mostly detached from the teeth, creating pockets varying from three to six millimeters in depth, though not ordinarily visible. In these pockets were serumal and salivary calculi deposited upon the teeth, seemingly of long duration. No other dental pathologic conditions were noted by direct view. Roentgenograms of all dental structure were taken. No apical rarefactions signifying any infection in these regions were noted. The alveoli around most roots were resorbed to a moderate extent, and rarefactions of interseptal alveoli suggested pathologic activity in this section of the periodontium.

Bacteriologic cultures were made from materials taken from several typical gingival pockets. Specimens were removed from the pockets with platinum loops, care being exercised to probe and reach the ulcerated bases. These withdrawals were tested for pathogenicity by the previously mentioned methods. The results were as follows:

All five tests of the upper left molar region were pathogenic (8 plus)
100 per cent pathogenic

Of the lower right cuspid region, three tests were pathogenic (8 plus) and two tests non-pathogenic 60 per cent pathogenic

Of the lower right molar region, all six tests were pathogenic (8 plus)
100 per cent pathogenic

Dental treatment commenced immediately following the diagnosis, with light supragingival scaling of the inflamed upper left molars. The next day the gingival inflamation, freed of local irritants, subsided: simultaneously, it was noted that the patient experienced subjective constitutional relief. A few days later, all teeth on the left side, maxillary and mandibular, were scaled supragingivally and curetted subgingivally. The following day the patient reported aggravation in the sacral region of the original complaint. Interestingly, it may be inferred that the stirring up of bacteria and their toxins in contact with the lymph spaces and capil-

laries of the circulation probably produced the exacerbation—apparently a reaction again in the distal condition to dental treatment. For relief, an injection (by the physician in charge) of an autogenous vaccine, that is, a toxin antigen derived mostly from streptococci and in part from staphylococci, gave immediately satisfactory results in the distant regions. At intervals of several days, the upper right and then the lower right quadrants of the teeth were scaled and curetted. All these treatments were performed with utmost care, for it was the purpose not alone to restore dental health but to effect complete interruption of infection of other parts. With this latter view in mind, curettage included planing the cementum slightly for imbedded infection as well as thorough removal of foreign accretions, the epithelial lining within the pocket not only being broken up with the hope of securing some reattachment or pocket closure, but of effecting a hemmorrhagic wash outwardly of depraved local blood and any foreign matter lying in the pockets; and finally curettage at the base produced a deep wash as a general eliminant. Later, pure ultraviolet rays from the quartz lamp were applied to inhibit any bacterial activity. Atomic iodine was also applied for its penetrating germicidal action and its tissue regenerative effects for final results.

On the medical side, together with the vaccine employment previously mentioned, infra-red rays were applied to the pelvic region of complaint one-half hour daily, obviously as an aid to eliminate toxins in the secondary area.

Remarkably rapid progress toward health was observed during the treatment. The gingival tissues were considerably improved, taking on a healthy color, firm tone, and making close contacts with the teeth in most areas. There was no longer any spontaneous hemorrhage. Medical'y, the intestinal spasms ceased, allowing normal movements again. The intestinal spasms, according to the medical opinion, were no doubt caused by toxemia operating through the sympathetic and parasympathetic nervous systems. The pain in the sacro-iliac region vanished, ambulation became almost normal, the vertigo disappeared, and likewise the other symptoms. All this occurred within the short space of two weeks. Gingival treatments were continued a while longer for recuperative purposes. No recurrences followed during a few months' observation.

The author is deeply indebted to the invaluable and indispensable coöperation of Dr. Albert F. Griffiths of New York City for the medical phase.

Summary and Conclusion

THUS, we must remember, the location of a focus in the dental structures may be not only in the classical apical abscess but in other parts as well, particularly the vulnerable periodontal tissue regions. New advanced bacteriologic methods of determining pathogenicity have demonstrated its occurrence in periodontal lesions (as in the foregoing case). Regarding the connection between the primary and the secondary area of disease, some findings have been made indicating that in a number of cases toxins, and not their bacteria producers, pass without resistance through the blood and lymph to other parts, causing inflammation by interaction of toxins and sensitized tissues. In other cases, bacteria themselves may pass along such tracts as the alimentary and respiratory systems, and these bacteria may directly yield toxins in the distant regions, producing similar inflammation of sensitized tissues. Whatever the nature of transference is, removal of disease in the primary area, in practice, has produced evidential results. The improved methods of securing specimens from periodontal pockets for bacteriologic studies and advanced methods of periodontal treatment have aided materially at the source in the elimination of diseases. The successful use of autogenous vaccines (derived from initiating zones) in secondary areas also proves their value in treatment. The procedure of treatment as illustrated demonstrates the indispensability of medical and dental coordination. Besides the foregoing case, many other dental cases have been treated with marked success in other parts of the body. Charters[4] has stated ". . . we are reasonably sure in making the statement that pyorrhea will cause and has caused a great many bodily ills and systemic disturbances. The fact that these conditions have cleared up after surgical treatment prompts me in making that statement." Finally, the influence of periodontal disease upon other parts of the body seems to be so prevalent that, with its increased recognition, clinicians will be inclined more to look invariably to the gingival tissues of the mouth for a possible source of infection elsewhere.

References

1. Chapman, G. H. and Rawls, W. B. Studies of streptococci; qualitative differences in resistance to various agents, *J. Bact.*, 31:323, 1936.
Chapman, G. H. and Curcio, L. Studies of streptococci; quantitative differences in resistance to sodium bicarbonate and hexylresorcinol, *ibid.* 31:333, 1936.
Chapman, G. H. Studies of streptococci; resistance of enterococci, *ibid.*, 32:41, 1936.
Stiles M. H. and Chapman, G. H. Relationship between agglutinability and certain in vitro tests of Straphylococci, Streptococci, and colon bacilli isolated from persons suspected of having chronic infection, *J. Lab. and Clin. Med.* 24:620-623. 1939.
2. Ruggier, J. C. and Chapman, G. H. New bacteriological consideration of dental infection as factors in systemic disease, *in press.*
3. Chapman, G. H. and Griffiths, A. F. Possible respiratory origin of pathogenic types of staphylococci and streptococci in bile culture, *Rev. Gastroenterol.*, 6:243, 1939.
4. Charters, W. J. Pyorrhea and a surgical treatment. *Dent. Survey*, 12:54, 1936.

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MISCELLANY

OLD TRAILS

VIII

BEFORE abandoning the fundamentals of medicine for the clinical and practical, space should be given to such a subject as cytology, as a phase of general biology, which has intimate contacts with medicine. This subject shades into numerous others, such as reproduction and embryology, growth rate, staining properties, tissue cultures, cell inclusions, etc., and has to do with the nucleus, chromosomes, reticulum, mitochondria and other elements of the cell.

Perhaps the first subject to bring up is the physical chemistry of the cell, as discussed in the epoch-making work of Hoeber on Physical Chemistry (1902). This author showed close analogies, based on common physicochemical properties, between a living cell and an inert droplet, which analogies tended to awaken anew the old arguments of the mechanists and vitalists.

Tissue-including pure cell culture *in vitro* was introduced in 1907 by Harrison in the successful attempt to demonstrate the truth of the neuronal theory, while at a later period Carrel succeeded in making pure cultures of many kinds of cell, pathological as well as normal—leukocytes, cancer cells, etc. These cultures may be kept viable for years and illustrate "cell immortality."

The problem of cancer genesis is bound up largely in this very subject of cell culture because it is possible to differentiate between normal and malignant cells; but while the differences are manifest it cannot be asserted that they have thus far illuminated the nature of malignancy, although they furnish a number of promising leads. The subject of cell staining, once regarded as no more than a means of identification, has in the course of time, especially since the introduction of vital staining (1909), become an invaluable means of research into cell physiology. The ability of a cell to absorb a dye may stand in a definite relation to its specific function. Differential staining revealed the difference between the "specific myocardium," or autonomous motor apparatus of the heart, and the myocardium in general. And it was through staining properties that the reticulo-endothelial cells concerned with the defense of the body against infection were differentiated.

The recognition of the sex chromosomes was announced by McClung in 1902 and inaugurated a long line of research into heredity. In this connection is the place to mention the lifelong activities of Jacques Loeb on cell fertilization by artificial means. Much of his work really belongs to the last century, but his matured conclusions have appeared in book form within recent years, as *The Organism as a Whole* in 1916. Loeb is entitled to the credit of demonstrating that fertilization is essentially a chemical process.

Another cellular subject of great importance is that of the "cell inclusions," which was first studied in the last century. These bodies—cells containing inclusions—have continually been found in infectious diseases of all kinds, and have frequently been confounded with living organisms, for they have even been cultured. But at the present day they are regarded as an appanage chiefly of diseases transmitted by an ultravisible virus, although it must be admitted that in a few cases they have been found in affections due to unknown bacteria, while they have been absent in some ascribed to ultravisible virus.

We may now pass to the relations of micro-organisms to the etiology of disease, the actions of antigens and the defense reactions, the developments of immunity and sensitization, etc. Advance along this line must be due largely to collateral developments in the basic sciences, the study of exotic diseases among primitive peoples, the resources supplied by state and private

From the Editorial Research Department of the Medical Times.

means, etc. At the same time the mere momentum of older methods is bound to promote further knowledge. The invention of the ultramicroscope in 1903 was of no small service in this direction, while the study of protozoa by a specialist like Schaudinn, aided by the new optical apparatus and new staining methods, was responsible for the discovery of the cause of syphilis—the *Treponema pallidum*—in 1905. In the same year Castellani discovered a similar organism as the cause of yaws.

In 1903 Negri found peculiar bodies in the brain of animals dead of rabies which have since served the purpose of a diagnostic criterion, although throwing no light on the nature of the malady.

During the period of 1901-9 important discoveries were made as to the causation of exotic diseases by certain organisms with insect transmission. Various protozoa, notably spirochetes and trypanosomes, were found to cause such affections as African sleeping sickness, African relapsing fever, Rocky Mountain fever, epidemic jaundice, ratbite fever, etc., the transmissions having been due to certain flies, ticks, etc. Nicolle in Europe in 1909, and Ricketts in the United States in 1910, proved that typhus was transmitted by body lice. It is worth noting in passing that in this group of cases ordinary bacteria did not figure, but instead protozoa, bacteria-like organisms, and invisible viruses (rabies, typhus). It was apparent that bacteria which are of plant nature were not to have a monopoly in the causation of disease.

In 1912 a new bacillus was discovered by Chapin in certain diseased squirrels and two years later it was recognized in mankind, but its pathogenicity was not understood until 1919, when Francis proved that it was the cause of so-called deer-fly fever and was transmitted in part by insects, but also by handling rabbits and other game. The same scientist named the disease tularemia and the organism *B. tularense*—local designations. The disease has since assumed national importance and has doubtless often been masked as typhoid with negative Widal. Of like importance is the recognition that undulant fever is endemic in the United States by Gentry and Farenbaugh, while in 1917 Alice Evans demonstrated the identity of this affection with infectious abortion in cattle—that is, the same organism is the cause of both diseases and one may transmit the other, although in the clinic each often pursues an individual course. Incidentally the original bacteria accused of causing these diseases occur in different strains with slightly different properties, and Evans in 1923 synthesized them into a group termed Brucella which also comprise the *B. tularense*.

In 1920 Noguchi announced that he had discovered a spirillum as the cause of American yellow fever but his tragic death prevented him from reviewing his original experiments. It is now accepted that the infecting agent is a filtrable virus.

In 1923 the Dicks announced that the cause of scarlet fever is a strain of the *Streptococcus hemolyticus,* and they have gradually developed skin tests of susceptibility, blood tests and an antitoxin, the latter appearing to exert a specific control over the disease.

In 1927 Noguchi determined that the cause of Oroya fever and verruca peruana is the *Bartonella bacilliformis,* while in the following year he isolated the *Bacillus granulosis* as the then presumptive cause of trachoma.

Naturally there have been many advances in the technics of bacteriology, such for example as the method of typing the pneumococci (1913), the strains of which show differences in virulence of prognostic value. A remarkable discovery is that bacteria in cultures may dissolve themselves and that this lysis is transmissible. First noted by Twort in 1915, the entire subject was exhaustively studied by d'Hercelle, beginning in 1917. His monograph on the subject of the "Bacteriophage" went through several editions.

The most striking achievement in the transmission of disease by an invisible virus is probably the discovery by Peyton Rous that a cell-free filtrate can cause fowl sarcoma; important because it gave rise to a line of research into the causation of cancer, including the sensational claims made by Gye and Barnard which were not established.

As to diseases due to molds and fungi,

—Continued on page 143

SPECIAL ARTICLE

HISTOLOGY OF VOLUNTARY STRIATED MUSCLE FIBER
I. VOLUNTARY STRIATED BEEF MUSCLE FIBER

M. B. Levin, M.D., R. Roseman, Ph.D., C. H. Burton, M.D., and H. Eisenberg

Baltimore, Maryland

DURING the past twenty years of work on digestion, simple methods for estimating gastric digestion have been sought by one of us (M.B.L.). There have been publications along these lines, wherein the extent of muscle fiber digestion, as determined by microscopic stool examination, served for the evaluation.[1, 2, 3] In the course of this work with muscle fibers, certain striking observations were made, and it was decided that these observations be summarized in order to demonstrate the fundamental structure of voluntary striated muscle fiber from the histological standpoint.

In Piersol's "Normal Histology,"[4] under "Striated Muscle," one reads:

"Each muscle fiber corresponds to an enormously elongated multinucleated cell and consists of a sheath, or sarcolemma, and the contained sarcous substance. . . . The sarcolemma is a transparent, homogeneous, elastic membrane and envelops the contained sarcous substance so closely that, under ordinary conditions, it is almost or entirely invisible. Being tougher than the muscle substance, it often withstands teasing with needles while the muscle is broken; where such breaks occur, the muscle substance sometimes contracts within the sarcolemma, which then becomes visible at the fractures as a delicate tubular sheath [unstriated]. . . .

"The sarcous substance, everywhere enclosed within the sarcolemma, also consists of two parts, the less differentiated and passive sarcoplasm and the highly specialized contractile fibrillae in which take place the active changes resulting in the contraction of the muscle fiber. The characteristic cross-striation, resolvable into alternating light and dark bands, that distinguishes the fibers of voluntary muscle depends upon the constitution and arrangement of the contractile fibrillae. These are threads of great tenuity which extend the entire length of the muscle fiber and present series of alternating light and dark segments that probably correspond to differences of density. The dark denser areas are doubly refracting (anisotropic); the light less dense ones are singly refracting (isotropic). The cross-striation of the muscle fiber as a whole results from the definite and orderly arrangement of the fibrillae. Close lateral approximation of the denser and deeply staining segments of the fibrillae, lying side by side within the sarcolemma, produces the impression of the dark band; the similar relation of the less dense and slightly staining segments produces the light band. The light band is subdivided by a delicate line, the intermediate disk, also known as Krause's membrane. In especially favorable preparations, the transverse disk appears less dense and lighter midway between its ends where it is traversed by a delicate line, the median disk (Hensen) or middle membrane (Heidenhain). . . . The intermediate disk, or membrane of Krause, is attached to the inner surface of the sarcolemma and extends completely across the muscle fiber. . . .

"Each muscle fiber corresponds to a multinucleated cell. The numerous nuclei result from division of the nucleus of the embryonal cell, the myoblast, and remain embedded within the sarcoplasm as the muscle nuclei. Their usual position in mammalian muscle is immediately beneath the sarcolemma. . . ."

From the Burton-Levin Foundation, Inc., Baltimore, Maryland.

Further Howell, in his "Text-Book of Physiology,"[5] when discussing the structure of skeletal muscle, states, in part:

". . . Each fiber is enclosed within a thin, structureless, elastic membrane, the sarcolemma. The material of the fiber inside the sarcolemmal bag shows the characteristic cross-striation, . . .

". . . . The fibrils consist of alternating dim and light discs or segments, which, falling together in the different fibrils, give the cross-striation that is characteristic. . . ."

In our work, we were struck by the difference between fresh voluntary muscle tissue and that treated with artificial fixatives or in a natural state of coagulation or cellular rigor mortis. There was a noticeable change in the histological appearance usually twelve hours or longer after the tissue was obtained, so that proper studies ordinarily demanded that the work be carried out with fresh material within twelve hours. After obtaining fibers of beef muscle from various parts of the body and observing the rapidity of rigor mortis or myocoagulation in this representative large mammal, we finally settled upon the cervical muscles at the base of the neck next to the spine as the most satisfactory for our work In most instances, being fairly close to the central organ of blood supply, rigor mortis was approximately the latest to occur for all practical purposes and myocoagulation was sufficiently delayed to allow time for our observations and photographs.

Where muscle fiber is discussed, reference in this paper is to the muscle fiber of beef; and unless otherwise modified, the following technique was observed in our work:

THE portion of muscle was removed immediately following the killing of the animal by knife slaughter and brought from the slaughterhouse to our laboratories as quickly as possible (this approximately within one-half hour). The beef muscle fibers were then teased loose with a sharp needle, transferred to the slide, and covered with saline solution and cover glass for observation and photography.

The elaborate structural histology given by Piersol and others could be only par-

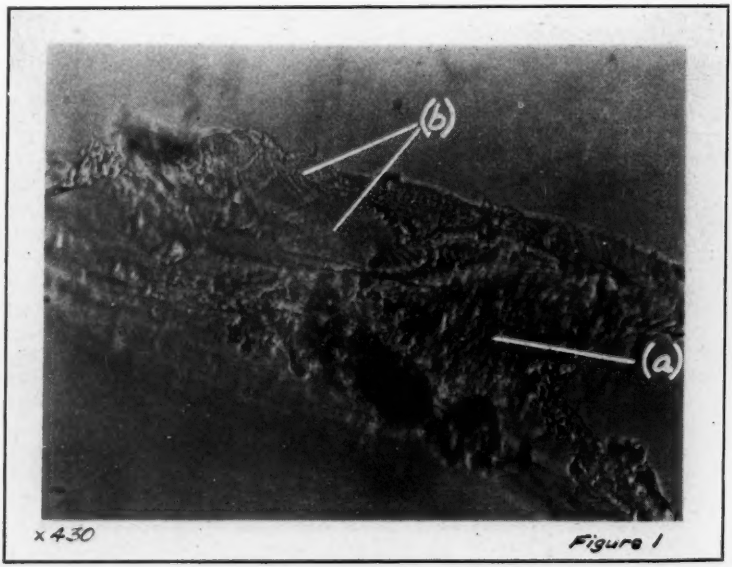


Fig. 1. Crushed fresh beef fiber. Sarcolemma ruptured; non-striated fibrillae (a) extruded and at the side of the striated sarcolemma (b). (X 430).

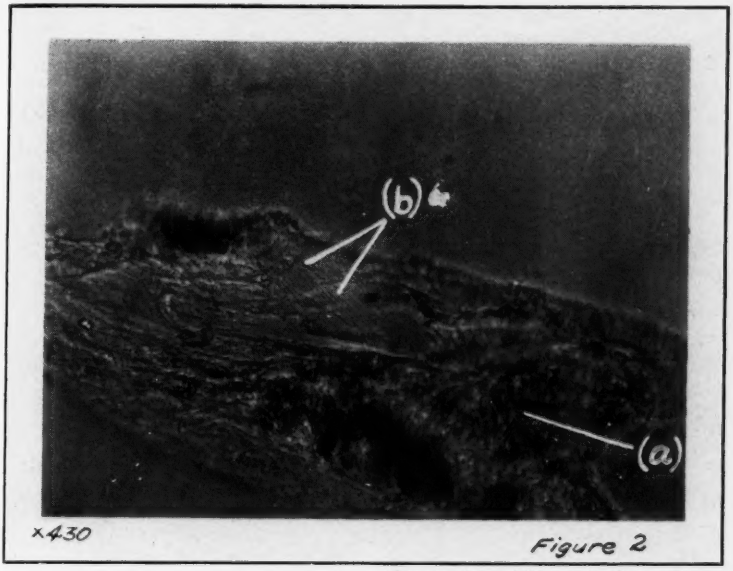
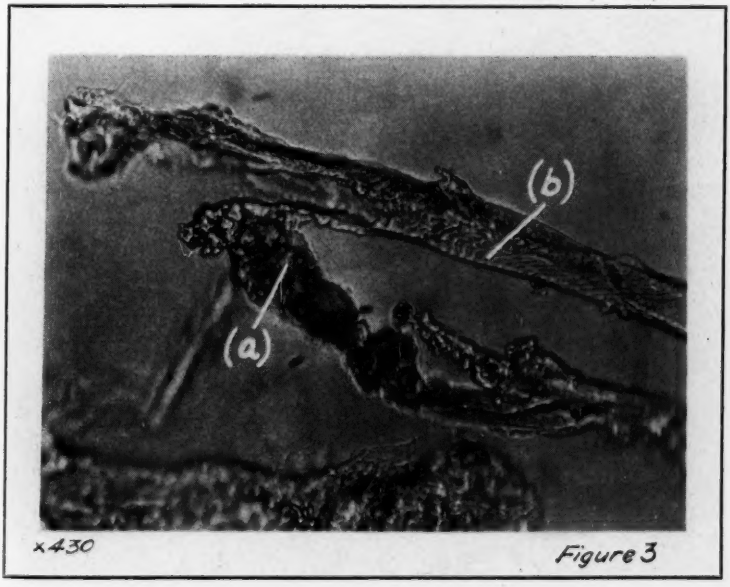


Fig. 2. Same fiber as in figure 1, with focus adjusted more on the striated sarcolemma (b) than on the non-striated fibrillae (a). Striations in the sarcolemma (b) show the effect of stretching as the result of manipulation. (X 430).

Fig. 3. Same fiber as in figure 1 treated with Lugol's iodine solution. Fibrillae (a), fixed after separation from the sarcolemmal sheath, do not show striations, while taking intense glycogen stain. The glycogen-stained fibrillae (b), fixed while invested by sarcolemma, show the coarser striations. (X 430).



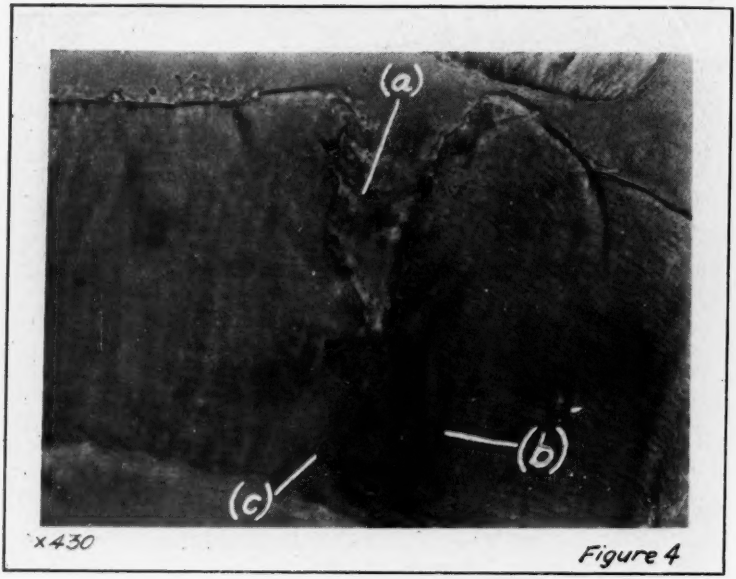
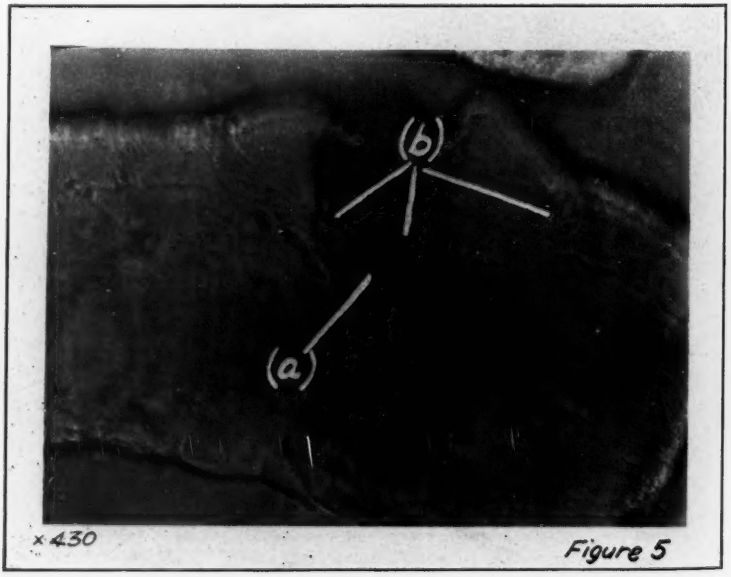


Fig. 4. Beef fiber twelve hours after obtainment, shows partial stiffening from incomplete coagulation, and is brittle. This permits of cracking of the fibrillae at (a), which is not possible in fresh beef fiber. Finely striated sarcolemma (b); nucleus (c). (X 430).

Fig. 5. Same fiber as in figure 4, shows finely striated sarcolemma (a) bridging space, and nuclei (b) in the sarcolemma, just beneath the striations. (X 430).



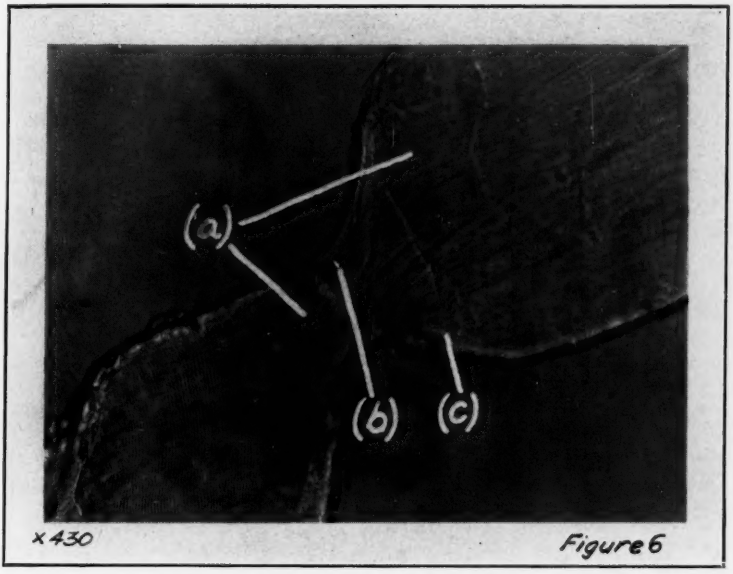
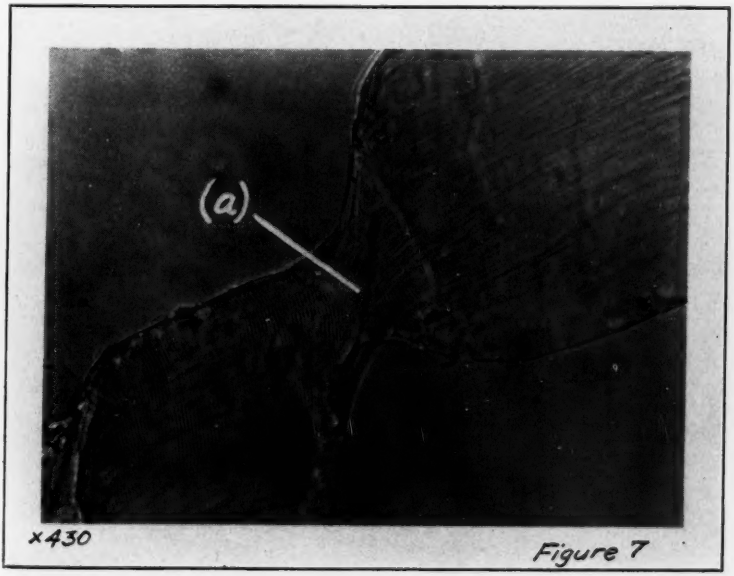


Fig. 6. Fresh beef fiber, focus on fibrillae at (a), separated by pressure and pulling, but with the intervening space (b) still bridged by the enveloping sheath of apparently non-striated sarcolemma. Nucleus (c) at edge of sarcolemmal bridge. (X 430).

Fig. 7. Same fiber as in figure 6, with focus adjusted to surface so as to show the fine striations of the sarcolemmal bridge at (a). (X 430).



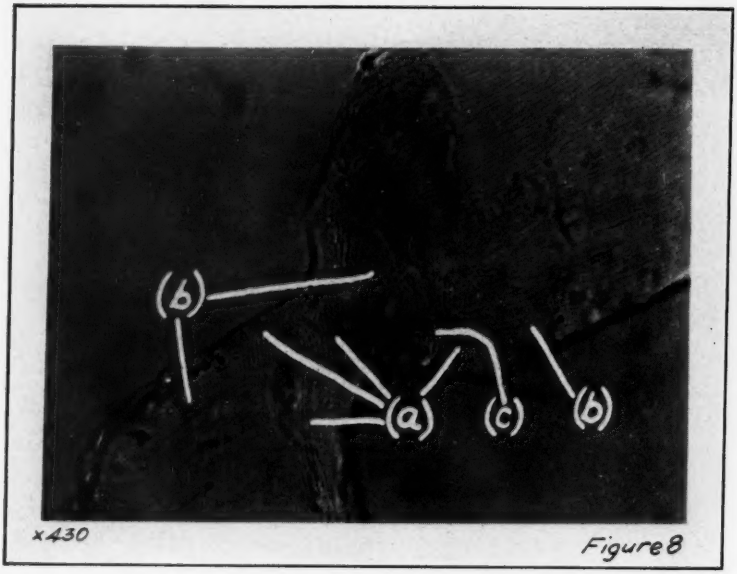
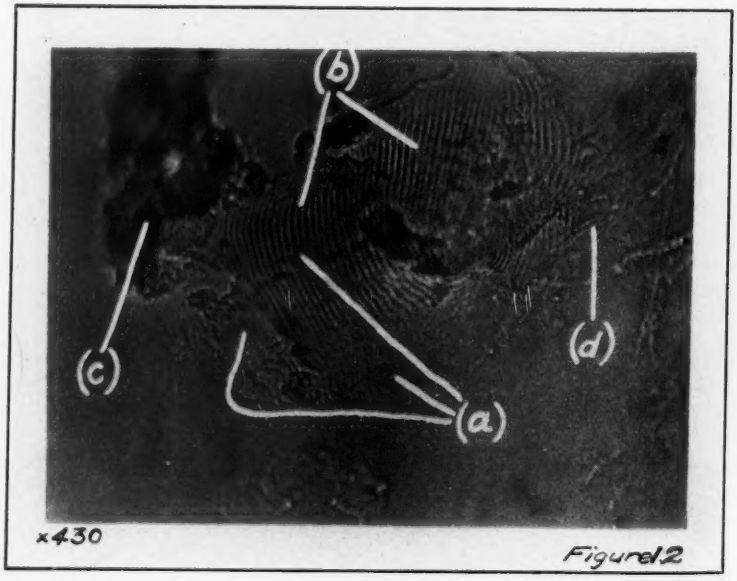


Fig. 8. Same fiber (and focus) as in figure 6, treated with N/10 HCl, after which pepsin was added to start digestion. Coarser myofibrillar striations (a) (artifacts) are seen below finer sarcolemmal striations (b). As the finer striations of the sarcolemmal bridge are digested by the HCl-pepsin, the nucleus (c), originally beneath the striations in the sarcolemma, stands out sharply, having been released to the surface. Note the longitudinal fissures and ridges in this figure, as well as in figures 4-7. (X 430).



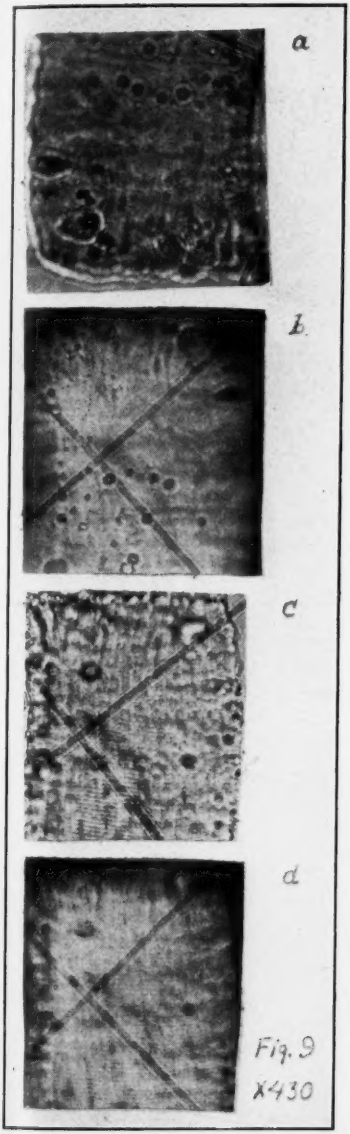
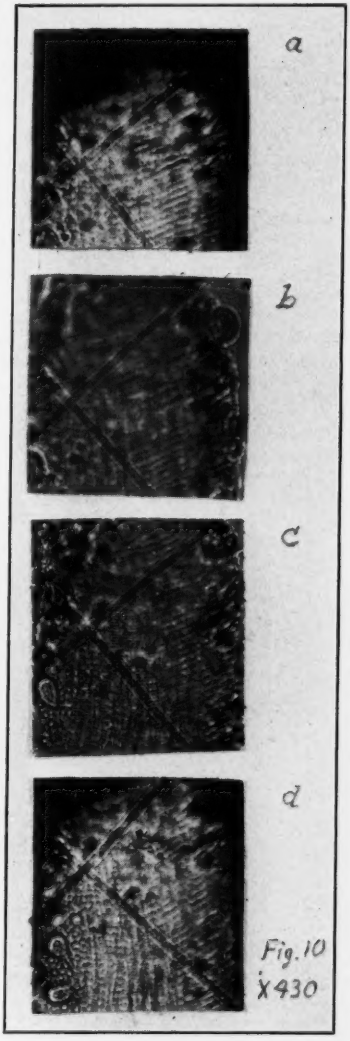


Fig. 12. Crushed fresh beef fiber treated with N/10 HCl to fix or coagulate it, after which pepsin was added and advanced digestion permitted. Shows very faint striations of almost completely digested sarcolemma at (a) and coarsely striated fixed fibrillae (b) below. At the edge of the fiber, fibrillae (c), extruded from the sarcolemma, prior to the fixation with HCl, show no striations. Almost completely digested nucleus (d). (X 430).

Fig. 9. Beef muscle fiber before myocoagulation. (a) Ordinary light, green filter, deep focus. Fine or coarse striations not evident. (b) Polarized light, same deep focus. Fine or coarse striations not evident. (c) Ordinary light, green filter, surface focus. Fine striations very evident. (d) Polarized light, surface focus. Fine striations very evident. In this beef fiber, before coagulation, only fine striations on surface (in sarcolemma) are

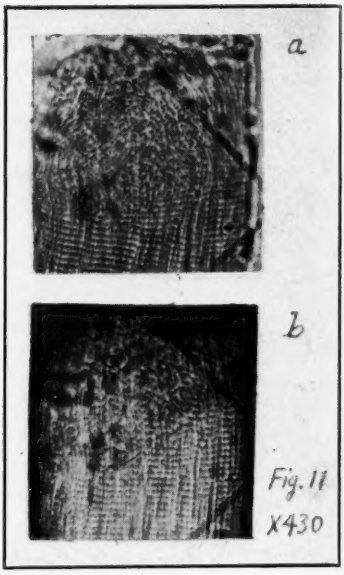


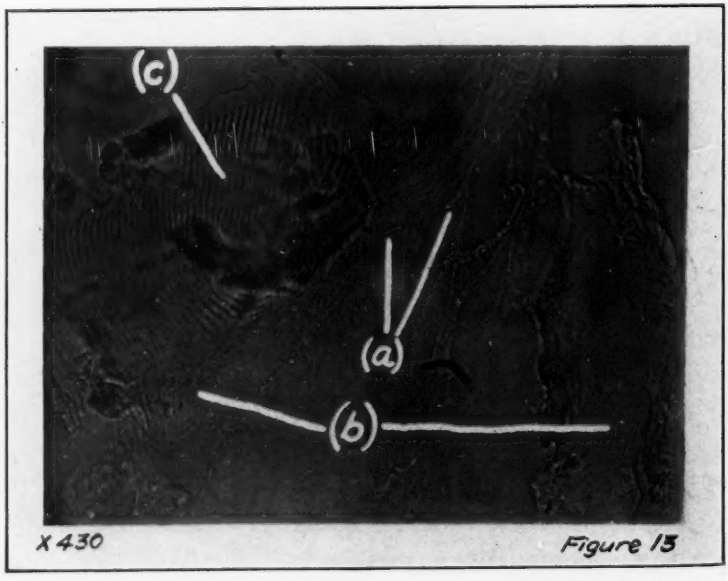
visible; deeper striations (in sarcous substance) not visible, either with plain or polarized light. (X 430).

Fig. 10. Beef fiber, complete coagulation. (a) Polarized light, deep focus. Many coarse striations and moderate amounts of fine striations are evident. (b) Plain light, green filter, deep focus; shows same as in (a). (c) Polarized light, surface focus. Shows more of the fine striations than the previous films, with many coarse striations from the deeper focus evident in the background. (d) Plain light, green filter, surface focus. Shows many fine striae with deeper coarse markings in background. Beef fiber completely coagulated shows fine surface striations (in sarcolemma) and coarser deep striations (in sarcous substance), with both plain and polarized light. (X 430).

Fig. 11. Beef fiber, complete coagulation. (a) Polarized light, deep focus. Chiefly coarse striations are evident. Longitudinal ridging is noticeable, and a few tendrils or myofibrils can be seen at the upper edge of the fiber. (b) Plain light, green filter, deep focus. Same findings as with polarized light. In this fiber with complete coagulation, many deeper, coarser striations are evident, together with longitudinal ridging and fraying of the substance at the upper margin. (X 430).

Fig. 13. Same fiber as in figure 12. Shows almost completely digested nuclei (a) in the residual sarcolemma; almost completely digested, faintly striated, sarcolemma (b); fibrillae (c), with coarse striations. (X 430).





tially demonstrated in the very fresh non-coagulated muscle fiber. We could, however, produce essentially the described structures at will, by fixing the fresh material in various ways. These structures, then, are, in part at least, microscopic artifacts, produced only after cellular rigor mortis has set in and fixation of the material has taken place. See figures 1-13.

OUR experiments show that the individual voluntary muscle fiber consists of a non-contractile outer sleeve, the sarcolemma, which envelops the sarcous substance. From the sarcolemma, non-contractile septa extend lengthwise through the fiber, forming tunnels or compartments within which is contained the contractile sarcous substance, the connecting septa, in irregular areas, binding the sarcolemma slightly into longitudinal fissures and ridges. In fresh voluntary muscle fiber, transverse striations are seen in the sarcolemma, but are absent in the fairly homogeneous contractile fibrillae. When fixed or coagulated, the muscle fiber shows varying depth of striations molded in the contractile material. The nuclei are in the sarcolemma, just beneath the striations.

Continuity of the fine sarcolemmal striations of fresh muscle is uncommonly interrupted, despite great effort by mechanical means. In fixed or coagulated material, continuity of the coarser myofibrillar striations is seen interrupted where the myofibrillae have been slid out of alignment in their tunnels or compartments.

Before myocoagulation, muscle fiber contraction is visible in the closer approach of the corrugations or wavy transverse fine striations in the sarcolemma, and stretching of the fiber is made apparent by the increased separation of the transverse striations. After fixation, the coarser striations are visible in this manner in the myofibrils, and the finer striae in the sarcolemma.

Conclusions

BEFORE myocoagulation, transverse striations in fresh voluntary beef muscle fiber are found only in the sarcolemma. Nuclei are normally in the sarcolemma, beneath the striations. The contractile portions of the sarcous substance (lying within non-contractile septa extending lengthwise through the fiber from the sarcolemma) are fairly homogeneous and not striated. After cellular rigor mortis or fixation of the fiber, however, larger and deeper transverse striations are found in the contractile fibrillae. As the result of our work, we conclude that these latter striations are artifacts.

References

[1] Levin and Raffel: "Gastric Digestion. A Simple Visual Test, and In Vitro Studies," *Ann. Int. Med.*, 8:965 (1935).

[2] Levin: "Peptic Ulcer Therapy," *Am. J. Dig. Dis. and Nutrit.*, 4:574 (1937).

[3] Levin, Burton, Roseman, and Eisenberg: "Peptic Ulcer Therapy," *Rev. Gastroenterol.*, 6:299 (1939).

[4] Piersol (edited by Addison): *"Normal Histology,"* 15th ed., J. B. Lippincott Co., Philadelphia, 1932, pp. 69-71.

[5] Howell: *"A Text-Book of Physiology,"* 13th ed., W. B. Saunders Co., Philadelphia, 1936, pp. 18, 19.

VITAMIN B DEFICIENCY

—Concluded from page 117

6. Beriberi and other Symptoms of Nutritional Disturbance in an Infant. J. Robalinho Cavalcanti, J. de Pediat. 5:153 (June-July) 1938.

7. Pellagra in Infancy and Childhood. T. D. Spies, A. A. Walker and A. W. Woods, J. A. M. A. 113:1481-1483 (October) 1939.

8. Recent Observations on the Treatment of Six Hundred Pellagrins, with Special Emphasis on the Use of Nicotinic Acid in Prophylaxis. T. D. Spies, J. M. Grant, R. E. Stone and J. B. McLester, South. M. J. 31:1231 (Demember) 1938.

9. Sydenham's Chorea. Joseph Schwartzman, M.D., David Dragutsky, M.D., and George Rook, M.D. The J. of Pediatrics 10:201 (August) 1941.

10. Riboflavin Deficiency in Man (Ariboflavinosis) W. H. Sebrell and R. E. Butler. Public Health Reports, Washington, D. C., 54:2121 (December) 1939.

11. The Ocular Manifestations of Ariboflavinosis. V. P. Sydenstricker, W. H. Sebrell, H. M. Cleckley and H. D. Kruse. J. A. M. A. 114:2347 (June) 1940.

12. Distribution of Riboflavin in Meat and Meat Products. O. Mickelsen, H. A. Waisman and C. A. Elvehjem. J. of Nutrition 18:517 (November) 1939.

SUITE 311, DOCTORS' BUILDING

CONTEMPORARY PROGRESS

MEDICINE

Preparation and Use of Concentrated Red Cell Suspensions in the Treatment of Anemia

G. E. O. WILLIAMS and T. B. DAVIE (*British Medical Journal*, 2:4218, November 8, 1941) point out that with large scale preparation of plasma from stored blood in Great Britain at the present time, "considerable quantities" of red cells in concentrated form have become available. The red cells are often discarded, but as it has been found that they are of value in the treatment of anemia, this is "particularly regrettable." At the Liverpool blood transfusion laboratory, the plasma is withdrawn from the blood by the closed method, by means of an aspirating needle inserted through the perforated metal cap and rubber diaphragm that closes the storage bottle. After separation of the plasma, the needle is pushed down to the bottom of the red cell layer and the red cells aspirated into a fresh sterile bottle; the cells remaining in the needle and tubing are used for grouping and cross-matching; the red cells from two or three donors of the same group may be combined; cross-matching of each sample with the blood of the patient to be treated is done either by the clinician or in the laboratory. The concentrated red cell suspensions, as prepared with a 2.5 per cent sodium citrate solution as an anticoagulant, contain, on an average, 8,500,000 red cells per c. mm. and 150 per cent hemoglobin. Although such a suspension shows a greater viscosity than citrated whole blood, it may be administered with the standard blood transfusion outfit with a longer transfusion rubber tubing; the rate of transfusion employed is approximately 100 cc. an hour. Such suspensions are not indicated for emergency use, but are used for cases of chronic anemia requiring replacement of hemoglobin and red cells, with a minimal increase of blood volume. Over 150 transfusions of concentrated red cell suspensions have been given; in 38 transfusions given to 35 patients, in which the hemoglobin response was studied, it was found that transfusion with 500 cc. of the suspension increased the hemoglobin percentage by 10 to 12 per cent, whatever the cause of the anemia. In 77 transfusions given to 61 patients, there were 15 reactions; in 7 definite rigors occurred. This rather high percentage of reactions is attributed to war conditions which made it necessary to obtain the citrate solution from sources outside the laboratory "under circumstances that made it impossible to guarantee the exclusion of pyrogens." The incidence of reactions was less than when stored whole blood was used under similar circumstances.

COMMENT

Extremely timely. Erythrocytes contain about 64 per cent water and 80 to 90 per cent hemoglobin. This would seem to be a valuable method for combating anemia in certain instances. The same care should be used (cross-matching and elimination of pyrogens) as with ordinary transfusions. There will be an increasing need for this type of material as the war advances. There is a great need for plasma and there should be an increasing response on the part of the public to blood donation. In private practice, transfusions are extremely valuable. However, there is a tendency toward overdoing it at times. Proper attention to clinical densimetry and administration of fluid and correction of anemia would make blood transfusions unnecessary in some cases.

M.W.T.

A Note on Cardiac Murmurs; Recommendation for a Revised Terminology

PAUL D. WHITE, F. D. ADAMS and DONALD CRAIB (*American Journal of Medical Sciences*, 203:52, January 1942) present a new terminology for cardiac murmurs which they have used in their practice and find more satisfactory than former classifications. All murmurs are classed as physiological or pathological. Physiological

murmurs may be either, (a) intracardiac or intravascular or (b) extracardiac. The intracardiac or intravascular murmurs are systolic in time, heard chiefly over the pulmonic valve area or at the apex; they are "soft and blowing," heard over a limited area, and often evanescent or inconstant. The extracardiac murmurs are the cardiopulmonary murmurs, usually called cardiorespiratory, and pericardial sounds, occasionally heard along the sternum. Pathological murmurs are classed as, (a) those due to structural disease of the valves, (b) those due to congenital cardiovascular defects, (c) those found with dilatation of a vessel or a chamber of the heart, and (d) those due to acute pericarditis. These pathological murmurs may be either systolic or diastolic. It may often be difficult to determine whether a slight systolic murmur is physiological or pathological. It may be difficult to distinguish whether pathological murmurs are due to deformed valves or dilatation of heart chambers or great vessels; both these conditions may be present in the same patient. In 100 Harvard freshmen examined, only one showed a pathological murmur—due to valvular deformity; 99 showed physiological murmurs. In 100 private patients, 24 showed only physiological murmurs, 39 pathological murmurs classed as due to dilatation and 37 pathological murmurs classed as due to valvular deformities. Undoubtedly in several of these cases both conditions were present. In all but 9 cases these murmurs were systolic in time.

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Public Health including Industrial Medicine and Social Hygiene

COMMENT

This is an excellent classification for a working basis on cardiac murmurs. More stress should be laid on auscultation than on electrocardiograms.

M.W.T.

The Treatment of Angina Pectoris With Testosterone Propionate

M. A. LESSER (*New England Journal of Medicine,* 226:51, January 8, 1942) reports the treatment of 24 cases of angina pectoris with testosterone propionate. There were 20 men and 4 women in this group; all had typical attacks of anginal pain at least once daily and in most cases several times a day. The testosterone propionate was given by intramuscular injection in doses of 25 mgm. in 1 cc. sesame oil, every second or fifth day. The frequency of injections depended on the severity of the anginal attacks and the patient's response to treatment. The number of injections given varied from five to twenty-five, averaging eleven injections. No other treatment except nitroglycerin to relieve the acute attacks was given; the patients were ambulatory and were "encouraged to perform their usual duties." In all cases, there was definite improvement as indicated by a decrease in the number and the severity of attacks with the patients continuing ordinary activities and by their ability to increase physical activity without precipitating an attack; most of the patients showed improvement after the sec-

ond or third injection. The male patients showed a greater degree of improvement than the female patients, but the number of the latter was too small to make it possible to determine whether sex is a significant factor in the results of testosterone therapy. The improvement was maintained for at least two months and usually longer, up to twelve months. Some of the patients who responded well to the testosterone injections were given injections of sesame oil prior to the testosterone injections or after recurrence of symptoms, without effect. Since angina pectoris is due to myocardial ischemia, it is evident that testosterone increases the blood supply to the myocardium, but it could not be determined whether this is due to the development of a collateral circulation. The results obtained in this series, in the author's opinion, warrant further investigation of testosterone propionate in the therapy of angina pectoris.

COMMENT

This is worthy of further investigation. Bonnell et al. (Ohio State M. J. 37: 554, 1941) pointed out that there was experimental evidence to show that sex hormones have a vasodilating action. They noted improvement in some persons with angina pectoris and coronary artery disease following treatment with estrogen and androgen. On the other hand, psychological factors are important in the treatment of the anginal syndrome. Master et al. (Am. J. Med. Sci. 197:774, 1939) found that placebos of milk sugar gave as favorable results as any medication in the treatment of this syndrome.

M.W.T.

Destructive Osseous Lesions In Early Syphilis

F. W. REYNOLDS and H. WASSERMAN (*Archives of Internal Medicine*, 69:-263, February 1942) report that in approximately 10,000 cases of early syphilis observed at Johns Hopkins Hospital in twenty years (1919-1940), destructive bone lesions were recognized in 15 cases. Such bone lesions in the early stages of syphilis are undoubtedly rare; in a review of the literature the authors were able to collect 15 other cases of similar type in which the destructive bone lesions were demonstrated roentgenographically. In both the authors' series of cases and those collected from literature, the bones of the skull were most frequently affected, particularly the frontal, the parietal and the nasopalatine bones; the sternoclavicular region was next in order of frequency; the long bones were less frequently involved. The chief symptoms of these destructive bone lesions are pain and localized tumefaction; if the bones of the skull are involved, the headache may be so severe as to suggest the possibility of acute syphilitic meningitis. The onset of the bone symptoms may precede or follow the secondary skin eruptions; in 4 of the authors' cases the bone involvement "was evident" before the rash appeared; in 2 no secondary eruptions developed. Roentgenograms show areas of decreased density in the affected bones surrounded by areas "where wavy periosteal markings" indicate a concomitant periostitis. In most cases response to the usual antisyphilitic treatment is prompt and favorable; the pain is relieved, the periosteal reaction subsides and the bone lesions heal. In all but 2 of the authors' cases, the serological and clinical response to specific therapy was as favorable as in cases of early syphilis without bone lesions; in 2 cases intensive therapy was necessary to effect a cure.

COMMENT

An important contribution. Wile and Walton (Am. J. Syph., Gonorrh. and Ven. Dis. 24:1, 1940) also reported destructive bone lesions in early syphilis. Some of the lesions were indistinguishable from those of multiple myeloma. One patient described showed progressive but slow improvement in the x-ray appearance of skull lesions. Another patient had extensive involvement of many ribs and vertebrae.

M.W.T.

Use of Sulfaguanidine in a Controlled Series of Typhoid Cases

W. M. HALL (*New Orleans Medical and Surgical Journal*, 94:223, December 1941) reports the treatment of 20 cases of proved typhoid fever with sulfaguanidine, using a similar group of 20 cases in the hospital at the same time and not given sulfaguanidine as controls. In both groups all patients showed typhoid bacilli in the stools and a high agglutination titer for both the O and H antigens. Sulfaguani-

dine was given in a dosage of 0.10 gm. per kilo body weight for the first dose, and 0.05 gm. per kilo every four hours thereafter; the drug was stopped on the twelfth or fourteenth day; in 6 cases further treatment was given after an interval of one week. There was no striking fall in temperature in any patient treated with sulfaguanidine; the average duration of fever and average hospital stay was longer in the sulfaguanidine than in the control group. Two of the patients treated with sulfaguanidine were discharged as "intractable carriers." Complications were numerous in both groups. As judged by the results in this series of cases, therefore, sulfaguanidine is not of value in the treatment of typhoid fever.

Comment

The sulfonamide group seems to be worthless in the treatment of typhoid.

M.W.T.

SURGERY

An Aseptic Resection of the Stomach For Carcinoma and Ulcer

E. HOLMAN (*Surgery, Gynecology and Obstetrics,* 74:146, February 1, 1942) describes an aseptic technique for resection of the stomach for carcinoma and ulcer developed at the Stanford University clinic in the last twenty-eight months. A midline incision is employed; in mobilizing the omentum or gastrohepatic mesentery, clamps are not employed to crush the tissues containing blood vessels. The tissues are separated by blunt dissection when possible; in the gastrohepatic mesentery, where this cannot be done easily, the two ligatures are applied through an avascular area with transfixion needles and the vessel divided between them. This avoids devitalization of the tissues and minimizes the hazard of infection. After immobilization of the stomach, the duodenum is resected between two Payr clamps, with the cautery. The duodenal stump is seared with the cautery, and closed with a continuous Parker-Kerr basting stitch of No. 0 chromic catgut, using an atraumatic needle, while the Payr clamp is left in place; this line of sutures is "in turn buried" by reversing the direction of the catgut suture back to its site of origin; then a third line of interrupted black silk sutures is employed to bury the catgut sutures. The Parker-Kerr inversion stitch is employed because "it turns into the intestinal lumen the raw contaminated edge of the divided bowel wall and approximates serosa to serosa." The stomach is divided between Payr or narrow crushing clamps, and cut edges of the stomach remnant seared with the cautery; a small "cuff" of tissue is left below the clamp and it is this "cuff" that is cauterized; the stomach is partially closed with a continuous Parker-Kerr stitch of chromic catgut, buried by interrupted silk sutures. A segment of the jejunum is removed after applying a clamp "tangentially" on the jejunal wall; and the loop of jejunum is applied to the stomach remnant, "proximal arm to right of opening, distal arm to lesser curvature." The anastomosis is done by using Martzloff's modification of the Parker-Kerr basting stitch with No. 0 chromic catgut, suturing first the serosal surfaces posterior to the clamps on stomach and jejunum, and then the surfaces anterior to the clamps. The clamps are removed, the two sutures pulled taut, and tied together at each end, then the whole line of sutures is buried with interrupted silk sutures. In resections for ulcer, less of the stomach is removed than if carcinoma is present, and this gastrojejunostomy completes the operation. When a subtotal resection is done for cancer, removing the entire lesser curvature with the glands in the gastrohepatic mesentery and most of the greater curvature, a complementary jejunostomy is "considered practically obligatory." The same type of suture is used as for the gastrojejunostomy. In 31 resections of the stomach for cancer

or ulcer done by this method, there has been no hemorrhage, and no deaths either from leakage or peritonitis; there have also been no wound infections and no signs of localized peritonitis.

COMMENT

This article, dealing as it does with the minute details of gastric resection, is replete with illustrations adequately depicting the successive steps in the proposed operative procedure. The principles involved in accomlishing the aseptic anastamosis necessary to restore alimentary continuity in such cases are set forth very clearly. The method is entirely orthodox. It is not unduly complicated and may be safely followed by most surgeons. Certainly in the experience reported by Holman the results achieved have been well worth all of the care and meticulous attention to detail demanded by this technic.

That there has been no neglect of any and all of the modern aids in the preparation of these patients for operation is proven by the magnificent record of 31 clinical resections without hemorrhage, infection or death. Just what the author's experience will be in the next 100 cases is "in the lap of the gods". There are other determining factors, some of them intangible and all capable of turning the issue against the patient in spite of superlative technic and management.

T.M.B.

Postoperative Gastric Drainage

J. P. WARBASSE, JR. (*American Journal of Surgery*, 54:648, December 1941) reports that at the Abington (Pa.) Memorial Hospital, gastric drainage is maintained after gastric operations by means of the Levin tube passed through the nose into the stomach, preferably before operation; suction is applied by the method of Wangensteen after operation. The time of re-establishment of gastric motility after operation may be determined by analyzing the patient's fluid intake and output by mouth (the latter including vomitus plus suction drainage). When the intake by mouth exceeds the output by mouth "gastro-intestinal motility is assumed to be re-established." When this occurs the tube may be clamped off for increasing periods of time and removed if no further indication for gastric drainage develops. In the series of cases studied the tube was left *in situ* for an average of twenty-four hours after the fluid balance record indicated the restoration of gastric motility. In this series, gastric motility was found to be at a minimum on the day after operation; by the fourth day after operation the motility was adequately re-established in the average case. Thus, since gastric drainage should be continued until gastric motility is adequate, the author concludes that, as a rule after gastric operation, the gastric drainage tube may safely be clamped on the fourth day, but "as a precautionary measure," it should not be removed for another twenty-four hours in those cases in which "there is a question as to the continuance of motility."

COMMENT

Outstanding among the many modern innovations in the management of surgical patients is the use of the Levin tube, sometimes alone, for gastric cleansing, and particularly when it is "rigged" up with the Wangensteen apparatus to provide continuous gastric siphonage as well. It will afford the greatest comfort to the patient, and the most keen satisfaction to the surgical attendant, when recourse to its use is timely and the essentials in the application of this treatment are understood and diligently carried out. It must not become merely standard or routine. Each case must be individualized. The abdominal surgeons and more especially the gastric surgeons have reason to praise it highly. Dr. Warbasse calls attention to its value as an indicator of the resumption of gastro-intestinal motility. His experiences as reported are gratifying and his conclusions sound. It does prevent gastric dilatation and exhaustive vomiting, each capable of initiating the most dire complications locally and constitutionally. By judicious arrangement of intervals during which siphonage is interrupted the unnecessary loss of fluids and essential chemicals is limited. Continued clinical observations similar to this one serve to widen the application of the treatment, and to bring an honest and conscientious evaluation of the method.

T.M.B.

Autoplastic Transplantations of Splenic Tissue in Man, Following Traumatic Rupture of the Spleen

R. A. HAMRICK and J. P. BUSH (*Annals of Surgery*, 115:84, January 1942) note that traumatic rupture of the spleen is of rare occurrence, as indicated by the statistics of the Hillman Hospital, Birmingham, Ala., where of 457 cases of acute abdominal injury, only 17, or 3.7 per cent, involved traumatic rupture of the spleen.

Recovery in these cases was rare. In one case, a boy nine years of age, the spleen was found to be ruptured, "almost in half," with active bleeding, and a splenectomy was done; the patient recovered. Thirty-nine months later, this boy was readmitted to the hospital with acute tetanus and died within twenty-four hours. At autopsy nodular splenic implants were found throughout the peritoneal cavity; each nodule was surrounded by a capsule; the tissue of the nodules was similar to that of the adult spleen. Such implants, the authors believe, grow from viable splenic pulp cells disseminated throughout the peritoneal cavity, as a result of the hemorrhage when the spleen—a vascular organ—ruptures. As these "nests" of splenic cells undergo division and growth, a fibrous "reaction" results in the formation of a capsule around them. A review of the literature shows only 12 similar cases of splenic implants following traumatic rupture of the spleen; no similar wide dessemination of splenic nodules in the peritoneal cavity has been reported following splenectomy. In all the cases of autoplastic transplantation of splenic tissue reported, the patients have been children; the oldest was fourteen years of age. This indicates that in man "relative youthfulness" of normal splenic pulp tissue is an important factor for the viability of the splenic pulp cells and their autoplastic transplantation. It is possible that such autoplastic transplantation of splenic tissue "may be more the rule than the exception" in persons who have had an injury involving traumatic rupture of the spleen in youth and have survived. As far as the cases reported indicate the splenic implants cause no symptoms.

Comment

The authors have supplemented a very complete and painstaking case report with a most interesting discussion of autoplastic transplantations of splenic tissue in man following traumatic rupture of the spleen. They call attention to the rarity of this occurrence, and review the literature associated with the reports of 12 similar cases.

The paper is not necessarily of practical importance, but it represents clinical observation and clinical study and research at its best. The authors are to be congratulated, for it is in this way that we surgeons are "made to see the light" and as a result are spurred on to more intensive efforts in our own work.

T.M.B.

Postoperative Infections of the Respiratory Tract in Relation to Inhalation and Spinal Anesthesia

JOHN LYFORD III (*Archives of Surgery*, 144:35, January 1942) reviews 631 cases of abdominal operations done under three types of anesthesia—ether, cyclopropane and spinal anesthesia. The cases in each anesthetic group were consecutive; a combination of inhalation and spinal anesthesia was not employed in any instance. These cases included only those in which no respiratory tract infection existed at the time of operation. The incidence of postoperative respiratory infections was found to be approximately the same with each type of anesthesia—5.8 per cent after ether anesthesia, 4.9 per cent after cyclopropane anesthesia, and 7.5 per cent after spinal anesthesia. An analysis of the age and sex of the patients, the duration of "the operative-anesthetic time," the blood pressure changes during spinal anesthesia, and the preanesthetic medication used, showed that none of these factors had any influence on the incidence of postoperative respiratory infections. These findings accord with those of others in indicating that respiratory tract complications are at least as frequent after spinal as after inhalation anesthesia. They do not, however, offer any explanation as to "the anatomic-physiologic cause of postoperative infections of the respiratory tract."

In a supplementary study (*Archives of Surgery* 44:41, January 1942) on the incidence of postoperative respiratory infections in 120 cases in which a low grade chronic respiratory infection was present at the time of operation, Lyford finds that postoperative respiratory complications occurred more frequently with all types of anesthesia than in the preceding series; in this group, the incidence with spinal anesthesia was two and a half times higher than with inhalation anesthesia—39.5 per cent, as compared with 13.5 per cent for ether anesthesia and 17.5 per cent for cy-

clopropane anesthesia. Such chronic respiratory infections as were present in these cases at the time of operation are not considered as contraindications to even elective operations, but if such an infection is present in any case, "further analysis as to the choice of anesthesia" is indicated.

COMMENT

The prevalence of pulmonary complications following operation continues to constitute a grave menace to the patient and an ever-recurring challenge to the professional personnel charged with the care of the patient. Ultramodern medical and surgical technique, a wide choice of agent and method in securing anesthesia, more rational approach in preventive and curative regimen and therapy, prove insufficient in controlling completely this very definite operative hazard.

Many diverse and varied factors are involved, and only painstaking management and care in handling operative patients will help to bring down postoperative morbidity and mortality. Accumulating data based on reliable clinical reports, combined with further clinical and experimental research, will undoubtedly bring us further toward a happy solution of this problem.

T.M.B.

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UROLOGY

Carcinoma of the Prostate; A Study of 429 Cases

J. G. STROHM (*Urologic and Cutaneous Review,* 45:770, December 1941) reports a study of 429 cases of carcinoma of the prostate collected from various hospitals in Portland, Oregon, and covering a period of ten years. The two most frequent initial symptoms in these cases were frequency and difficulty of urination; in many cases these two symptoms occurred jointly; retention of urine was an initial symptom in 103 cases. Later retention developed in 199 cases and dysuria in 117 cases. The average age of the patients in this series was sixty-eight years; the youngest patient was seventeen years of age, the oldest ninety-two; there were 85 patients between sixty-five and sixty-nine years of age and 104 between seventy and seventy-four. On rectal examination the prostate was hard, sometimes nodular, sometimes fixed or irregular. In any case of prostatic disease in which a nodular or indurated area is palpated, a specimen of tissue should be removed for biopsy. In the cases in this series the median lobe was most frequently involved; the entire gland was involved in 63 cases. In most instances the growth was too far advanced for radical surgical treatment or successful irradiation therapy. In such cases only palliative treatment is possible. Since 1935 the author has used female sex hormones for the relief of the pain of bone metastases in carcinoma of the prostate with some good results. At first a saline extract of placenta was used, then placental or cord blood, theelin, amniotin and stilbestrol. The conditions found in this survey of cases of prostatic carcinoma have convinced the author "the entire carcinoma situation" must be attacked "with renewed effort" and a crusade instituted "such as was made against tuberculosis."

COMMENT

It is the old story in this valuable study. The early symptoms of cancer are the ones which patients tolerate almost as though they enjoyed a "little pain", "a few occasional drops of blood", "frequency now and then", and so on ad infinitum. Family physicians are only a few steps ahead of the patients. On the other hand, we have the cases with retention as the first symptom. We are better than we were in the early diagnosis of early cancer but we must be better than we are.

V.C.P.

Recent Advances with Chemotherapy In the Treatment of Infections of the Urinary Tract

E. N. COOK (*New England Journal of Medicine,* 226:187, January 29, 1942) states that it has been found that mandelic acid is effective against infections of the urinary tract with gram-negative bacilli and *Streptococcus faecalis.* In determining the

indications for the use of this drug, therefore, "a general grouping" of the infecting organisms with the use of the Gram stain is essential; cultures may be made; they are "not necessary but helpful." The renal function must be normal if mandelic acid is employed; at the Mayo Clinic, some untoward reactions have occurred when this drug was given to patients with a blood urea concentration over 40 to 50 mg. per 100 cc. The importance of adequate dosage, maintaining the pH of the urine below 5.5, and limitation of fluids during mandelic acid therapy is well recognized. The sulfonamides have become very important in the treatment of urinary infections. Sulfanilamide and azosulfamide are effective against gram negative bacilli and the betahemolytic streptococcus. At the Mayo Clinic, it has been found that the daily dosage of sulfanilamide need not exceed 40 gr. (2.6 gm.) daily as a rule; a similar amount of sodium bicarbonate should be given with each dose. With azosulfamide, a larger dose is given, 60 gr. (4 gm.) daily. These drugs are usually given for eight to fourteen days; if necessary, the course may be repeated after a rest interval of two to three weeks; two or three courses are often necessary. Sulfapyridine has been but little employed in the treatment of urinary infections in the United States. Sulfathiazole, however, has become "a major factor" in treating urinary tract infections in the last year at the Mayo Clinic. At first a daily dosage of 60 gr. (4 gm.) was used, but it has been found that a daily dosage of 45 gr. (3 gm.) is effective in most cases. When it is necessary to maintain a high concentration of the drug for a considerable period, the daily dosage is given in divided doses "over the entire twenty-four hours of the day." Sulfathiazole is as effective as sulfanilamide against the gram-negative bacilli causing urinary tract infection, and is of special value in treating infections due to micrococci and staphylococci. All the sulfonamides are best given by mouth in urinary tract infections, but if this is impossible for any reason, they may be given parenterally. With the dosage used at the Mayo Clinic—which is less than that generally used—toxic reactions have been few and not serious. Sulfathiazole is well tolerated by a greater number of persons than any other sulfonamide; in the author's experience, he has seen only 2 or 3 cases of gross hematuria, microscopic hematuria "infrequently," and no case of renal colic or anuria, although sulfathiazole crystals are usually demonstrable in the urine if there is hematuria, either gross or microscopic. However, close observation of patients under sulfonamide therapy is necessary.

Comment

There are 30 or more barbituric acid preparations. This large number are like the trees which were so numerous that the small boy "could not see the woods for the trees". The modern sulpha compounds are in large number also but their variations in action distinguish them from the one reaction of the barbiturates, namely, sedation. This study is extremely valuable because it draws so many lines of difference in selection, action, benefits and end results. Wholesome progress as to dosage is the tendency to reduction in quantity and distribution in small doses through 24 hours. All these steps are upward and onward. Interesting from the standpoint of disadvantages and dangers of these preparations is a very recent report of a definite case stone-formation following active production of crystals. Thus ever, sooner or later, with new drugs.

V.C.P.

The Significance of Randall's Papillary Lesions in the Causation of Renal Calculi

K. T. KJÖHHEDE and H. KRIEGER LASSEN (*Journal of Urology*, 47:45, January 1942) report a study of papillary lesions in 263 kidneys from 135 subjects within a few hours after the general autopsy was completed; an average of 7.2 comparatively well preserved papillae were examined in each kidney, excluding 4 kidneys in which extensive pathological changes were present. Calcium deposits in the papillae, such as were described by Randall in 1939, were found in 86 cases; these calcium deposits showed three different forms—radial stripes, apparently solid, large whitish "clots," and annular deposits. The latter consisted either of a single ring surrounding the orifice of a single collecting tubule; or several rings, sometimes

forming "a net-like design;" or whitish incrustations covering most of the apex of the papilla, sometimes without epithelial covering and "possibly with necrotic holes." The annular deposits were found in one or both kidneys in 61 cases. The calcium deposits were found in young as well as in old persons. Renal calculi were demonstrated in 14 of the cases, but in 6 of these no calcium deposits were found in the papillae. Of the 86 cases in which calcium deposits were found, renal calculi were also present in 8 cases, not present in 78 cases. In 10 cases holes in the calcium deposits were found such as are described by Randall as due to the tearing off of "minimal" calculi; but renal calculi or evidences of previous renal calculi were found in but 3 of these 10 cases. In one case it was possible to find a calculus that might have been adherent to a papillary calcium deposit. From these findings the authors conclude that the papillary calcium deposits described by Randall are not "causes of any great significance in the genesis of renal calculi." Such deposits may "at the most" be a *locus minoris resistentiæ* for the development of calculi, but "such development most frequently is the result of other wholly different factors."

COMMENT

Is not the point of this and similar studies this simple question? Given the factors of stone-formation, now known to be usually present, is it not a mere incident as to the point where the deposit begins and from which it progresses? The papillae are such points and probably little else if anything else.

V.C.P.

Simultaneous Obstruction of Both Ureters with Uremia

L. R. WHARTON (*Journal of Urology*, 47:133, February 1942) reports 7 cases of bilateral ureteral obstruction; in 2 cases the bilateral obstruction was due to stricture; in 2 cases, to stone; in one case each to back pressure from vesical retention, carcinoma of the bladder, bilateral ligation of the ureters. In all these cases a greater or less degree of uremia developed, which was relieved completely or partially, depending upon the promptness with which the urinary obstruction was relieved, except in the patient with carcinoma of the bladder who died in uremia a month after admission to the hospital. This case is "noteworthy," because the carcinoma caused no symptoms until three weeks before the patient was admitted to the hospital with symptoms of uremia; autopsy showed an infiltrating bladder carcinoma that had surrounded both ureteral orifices. The 2 patients with urinary calculi, both women, also had not had urinary colic or other symptoms indicating the presence of calculi; in both sudden bilateral obstruction of the ureters developed with progressive uremia; in one of these cases stones had probably been present for years as one kidney was functionless, the other the site of pyelonephrosis; improvement followed drainage of this kidney and subsequent removal of the calculus from the ureter. These cases clearly show the danger of urinary stasis and infection. Ureteral stricture may be complete or incomplete; both are "of equal potential danger to the kidney," the only difference being the rate at which the renal damage occurs. While a complete ureteral stricture is easily recognized, it may be difficult to diagnose an incomplete stricture, especially if a very fine catheter is used; a history of urinary infection and "the general clinical picture" are of importance in establishing the diagnosis in these cases. Urinary infection and obstruction may be "insidious," progressing without causing symptoms until "irreparable" renal damage has resulted. Such conditions should be "eliminated," even if asymptomatic, because of the danger to the kidneys.

COMMENT

Any factor from which stasis of the urine results is important, even before obstruction. Of the various causes noted the most treacherous is carcinoma of the bladder, which in this patient had no symptoms until three weeks before death. Because there was no ulceration the classic symptoms of pain, pus, blood, frequency and dysuria were absent. One may easily surmise that by and large this cancer

did not invade the mucosa in the classic way. Of course, the more prompt the relief of the obstruction and the removal of its cause, if possible, the better the result for the patient.
V.C.P.

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PEDIATRICS

Cardiac Signs in Rheumatic Infection of Childhood

RACHEL ASH (*American Journal of Diseases of Children,* 63:1, January 1942) reviews the cardiac signs of rheumatic infection observed for an average period of nine and six-tenths years after the onset of the infection. Of this group 19 per cent had had neither cardiac enlargement nor murmurs during the initial illness; this group was classified as having "potential heart disease." In another 19 per cent, there was no demonstrable cardiac enlargement, but systolic murmurs "of the type usually considered accidental or functional" were present; this group was classed as "potential and possible heart disease." In 62 per cent a diagnosis of valvular disease was made after recovery from the first attack of rheumatic infection; all showed some degree of cardiac enlargement; a systolic "blow" maximum at the apex, with or without a mid-diastolic blow, was considered to indicate mitral valve involvement; a diastolic blow to the left of the sternum, aortic valve involvement. In the period of observation, the death rate in children with potential or possible heart disease was relatively low in spite of recurrences of rheumatic infection. In the group in which a definite diagnosis of heart disease was made after the initial attack, the physical signs of heart disease regressed in 10 per cent. In the cases in which a diagnosis of potential or possible heart disease was made, 19 per cent subsequently developed definite cardiac lesions. In the early stage of rheumatic carditis, the mitral valve is dilated rather than stenosed; stenosis may subsequently develop. In the author's series, "the diastolic thrill and rumble" of the adult type of mitral stenosis developed in 39 cases; the isolated diastolic rumble of pure mitral stenosis developed in 15 cases. The systolic "screech" or "whistle" developed in 48 cases, in all but 2 of which it was associated with acute carditis, which was fatal in 6 instances; 5 patients died subsequently of rheumatic heart disease, and 3 of bacterial endocarditis; in 5 this "whistling murmur" persisted for several years; in the remainder it disappeared as the acute carditis subsided. A pericardial friction rub was "the most ominous cardiac sign;" this developed in 81 patients; 75 per cent of these patients died, 60 per cent during the illness in which the friction rub was first noted. Aortic insufficiency developed in 110 patients, and 52 per cent of these patients died. At the end of the period of observation, 25 per cent of the children had died of heart disease; 60 per cent either had no heart disease or the degree of cardiac damage was such that they "were not prevented from leading a normal existence."

The Initial Response to Immunization With Diphtheria and Tetanus Alum Toxoid

W. C. DEAMER, G. BATES and F. S. SMYTH (*Journal of Pediatrics,* 20:169, February 1942) note that tetanus may develop in children following minor injuries which may be overlooked or for which the administration of tetanus antitoxin does not appear to be indicated; therefore, an attempt to immunize all children against tetanus appears to be desirable and may offer "a more satisfying solution" to the problem of tetanus prophylaxis than the prophylactic use of antitoxin. The authors have given injections of combined diphtheria and tetanus alum toxoid to over 600 infants under one year of age; three injections of 1 cc. each have been given, in most cases at intervals of one month, but recently at intervals of two months. Schick tests and determinations of the tetanus antitoxin content of the blood by guinea

pig assay have been made two months or more after the last injection in 242 cases. The variation in tetanus antitoxin was considerable, but in all these cases it was over 1/100 of an antitoxin unit per cc.; the antitoxin titer tended to be higher in those cases in which the longer (two months) interval between injections was employed; 96 per cent of these children had a negative Schick reaction. The injections were well tolerated; local reactions were slight and general reactions "noteworthy for their absence." A study of the response of these children to a late "recall" injection of tetanus toxoid is being made.

COMMENT

War is always accompanied by an increase in the various infectious diseases. The possibility of catastrophic events and associated dangers of tetanus makes this an appropriate time to add tetanus immunization to our routine procedures. Deamer, Bates and Smyth are pointing the way as are other investigators. It seems to me enough evidence is at hand to justify no hesitancy in using the diphtheria and tetanus combined toxoid. In these times I can't stress too greatly the need for all children being protected by immunizations against smallpox, diphtheria, tetanus, whooping cough and typhoid. ***O.L.S.***

Observations on the Distribution and Transport of Gas in the Gastro-intestinal Tract of Infants and Young Children

J. R. PAINE and C. B. NESSA (*Surgery,* 11:281, February 1942) report an x-ray study of the distribution of gas in the intestines of 46 infants and young children who had no gastro-intestinal disturbances; the roentgenograms were made with the child in the supine position, without any preparation. It was found that in infants under eighteen months of age, the amount of gas in the small and in the large intestines is about equal; between the ages of eighteen months and six years, the amount of gas in the small intestine decreases and that in the large intestine increases. By the age of seven years, no gas is visible in the small intestine, all visible gas being present in the colon. These findings are of importance in relation to the diagnosis of intestinal obstruction in young children; the presence of some gas in the small intestine in children under six years of age is not abnormal; but if there is small bowel obstruction, the amount of gas will be larger than normal, and the gas-filled intestinal coils will show dilation. In a special study of 7 newborn infants, serial roentgenograms were made, the first within six to fifteen minutes after birth; at that time gas was visible in the stomach, duodenum or jejunum; by four to six hours after birth gas was present in the sigmoid colon or rectum. This finding is of importance for the diagnosis of congenital intestinal obstruction in the newborn.

Infantile Diarrhea and Vomiting

R. M. CAMPBELL and A. A. CUNNINGHAM (*Archives of Disease in Childhood,* 16:211, December 1941) present a study of 574 infants under two years of age admitted to the Park Hospital with a diagnosis of gastro-enteritis; no cases due to specific infection with the dysentery bacilli were included in this series. The mortality rate for the series was 27.7 per cent. The greater proportion of these infants contracted the disease at home, only 20 per cent being admitted from institutions. There was evidence of parenteral infection in less than one-third of the entire series, and in most of these cases the respiratory tract was involved; otitis media and mastoiditis were less frequent than respiratory tract infections and showed a lower incidence than has been reported by others in similar series of infantile gastro-enteritis. In the treatment of these cases, general nursing management "of high order" is essential. The most important single factor is the relief of dehydration. For this purpose constant subcutaneous infusions proved of most value, alternating normal saline, Ringer's solution and 3 per cent glucose in 0.25 per cent saline; in severely ill patients this should be supplemented by fluid given intraperitoneally or intravenously. The death rate was much higher in dehydrated children than in those not dehydrated. The death rate was also higher in infants under nine months of age than in older children, but in all age groups, the mortality was much increased by dehydration. A starvation

period of twenty-four to forty-eight hours was generally enforced, and this should be longer in severely ill and toxic infants; during this period, small amounts of water were given by mouth at frequent intervals; glucose was next added to alternate feeds; then "a careful and gradual change" was made to separated dried milk, and finally to half-cream dried milk. In children over nine months of age a commercial preparation of apple was found to be of value in varying the diet; in younger infants, this did not give any better results than the dried milk preparations. In a few cases a dilute isotonic amino-acid solution was given subcutaneously without any ill effects, but the preparation of this solution was so expensive that it was not employed on a large scale. In this series only 18 infants, or 4.5 per cent of those under nine months of age, were breast-fed at the time of the onset of the illness; and only 3 of these died. The value of breast feeding in the prophylaxis of infantile gastro-enteritis is "again demonstrated."

Benzedrine Sulfate (Amphetamine) in The Treatment of Obese Children And Adolescents

HILDE BRUCH and IRENE WATERS (*Journal of Pediatrics,* 20:54, January 1942) report a study of the effect of a daily dosage of 10 mg. benzedrine sulfate on weight reduction in 20 children and adolescents. All these patients were on carefully planned reducing diets; the benzedrine tablets were given for periods of four weeks alternating with a period of four weeks when placebos similar to the benzedrine tablets were given. The loss of weight during the periods when the placebo tablets were given was slightly less than during the period of benzedrine administration, but the authors do not consider the difference to be "of statistical significance." The greatest loss in weight occurred during the first few weeks of treatment, whether benzedrine was given on beginning treatment or not; this is due to "the patient's enthusiasm for a new therapy." The best loss of weight was observed in a control group of children who were regular in attendance at the clinic and showed good cooperation, without any medication. Although this study did not show a significant effect of benzedrine sulfate on weight loss with a dosage of 10 mg. daily, the authors consider that "the findings encourage further observations of the effect of larger dosage."

OLD TRAILS VIII

—Continued from page 122

Beurmann and Gougerot published their monograph on sporotrichosis in 1912, and Castellani, beginning in 1905, described an entire group of mycoses, work of much clinical value.

While on the subject of new infectious diseases we would not neglect a few in which no bacterial cause has been isolated. Chief among these is encephalitis lethargica, caused by a virus, also known as epidemic encephalitis and sleeping sickness. First described by Economo in 1917, it has appeared in most regions of the world, in small incidence but with high mortality, and now has an enormous literature. There is something about the present century which seems to favor the development of encephalitis in ordinary infectious diseases in an unusual degree. Among these are influenza, measles and especially the variola group. In this connection we may allude to vaccination encephalitis, which has appeared in small groups in Holland and England. It is believed that a common susceptibility underlies both the essential and secondary forms of encephalitis and that this is transitory.

—Concluded on page 148

Medical BOOK NEWS

Edited by
ALFRED E. SHIPLEY, M.D., Dr. P.H.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn, N. Y.

Blood Transfusion

The Blood Bank and the Technique and Therapeutics of Transfusion. By Robert A. Kilduffe, M.D. and Michael DeBakey, M.D. St. Louis, C. V. Mosby Company, [c. 1942]. 558 pages, illustrated. 8vo. Cloth, $7.50.

THE appearance of this book on blood transfusion has been very well timed in view of the recent developments. Dr. Kilduffe and Dr. DeBakey are particularly well equipped to present the subject, and the medical profession owes a debt of gratitude to these authors for this complete and scholarly work.

The book will be of use not only in connection with civilian medical practice but in particular in relation to military medicine, since a large part of the book is devoted to a discussion of the transfusion of plasma.

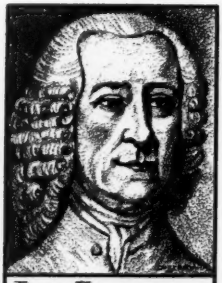
The book begins with a fairly detailed and interesting history of blood transfusion, and this is followed by a complete discussion of the rationale, indications for and contraindications to blood transfusion. In chapter three the trend of the book is emphasized by a special discussion of the military aspects of transfusion. These chapters, as well as all the other sections of the book, are thoroughly documented, a complete list of references being provided for those desiring to go more deeply into the subject.

The technic of grouping and cross-matching described is clear, complete and yet not too complicated for routine use. The chapter on the blood bank and the biochemical changes in stored blood can be read with profit by all physicians in view of the widespread use of preserved blood for transfusion. The section of the book of most value and interest at the present time is chapter 12-14, dealing with the transfusion of plasma, in which detailed directions are given for the preparation not only of liquid but of desiccated plasma. The numerous and excellent illustrations are most helpful in following the rather complicated procedure for the preparation of plasma. It should be mentioned in fact that the excellent illustrations throughout the book are one of its major assets.

The chapter on methods and technic of transfusion is quite interesting, and of special value are the ingenious transfusion apparatus invented by Dr. DeBakey himself.

The final chapter on complications of transfusions is up to date, and includes a discussion of the rôle of the Rh factor in transfusion reactions. This is another section of the book that can be read with profit by every physician in view of the widespread popularity of transfusion therapy at the present time.

ALEXANDER S. WIENER



JOHN FOTHERGILL
1712~1780

Classical Quotations

● From imperceptible beginnings, a pain attacks some part or other of the face, or the side of the head: sometimes about the orbit of the eye, sometimes the *ossa malarum*, sometimes the temporal bones, are the parts complained of. The pain comes suddenly and is excrutiating; it lasts but a short time, perhaps a quarter or half a minute, and then goes off; it returns at irregular intervals, sometimes in half an hour, sometimes there are two or three repetitions in a few minutes. . . . One sees enough to excite one's compassion, if present during the paroxysm. . . . Eating will bring it on some persons. Talking, or the least motion of the muscles of the face, affects others.

John Fothergill
The Works of John Fothergill, M. D. London, 1783. Vol. 2, pp. 179-189.

The New Gould

Gould's Medical Dictionary. Words and Phrases Generally Used in Medicine and the Allied Sciences, with their Pronunciation and Derivation. Edited by C. V. Brownlow. Fifth edition. Philadelphia, The Blakiston Company, [c. 1941]. 1528 pages, illustrated. 4to. Cloth, $7.00 plain, and $7.50, indexed.

THIS is the fifth edition of a well known dictionary. The old definitions have been revised where necessary in order to bring them into line with recent advances and hundreds of new words have been added. Tables, colored plates, and much useful addenda enhance the book's comprehensiveness and helpfulness, with all its contents marked by a scholarly accuracy.

ARTHUR C. JACOBSON

Vitamins in Meat

The Vitamin Content of Meat. By Harry A. Waisman, Ph.D., and C. A. Elvehjem, Ph.D. Minneapolis, Burgess Publishing Company, [c. 1941]. 210 pages. 4to. Paper, $3.00.

THIS book on the Vitamin Content of Meat, is an excellent monograph on the subject. It covers more than we expected.

The author is to be commended for his work on the physiology and the pathology of the deficiencies of each vitamin. The tables we assume are from the laboratory of the author.

In the summary, the author tells us that vitamins A. D. C. E. & K, are found in small to negligible amounts in meats. The vitamin B. groups—Thiamin, Riboflavin, Nicotinic acid, Panto-thenic acid, Pyridoxine and the factors of biotin, inositol, choline and para-amino benzoates, are their main sources—are found in meat.

MORRIS ANT

Medical Gynecology

Gynecology and Female Endocrinology. By Emil Novak, M.D. Boston, Little, Brown and Company, [c. 1941]. 605 pages, illustrated. 4to. Cloth, $10.00.

DR. NOVAK has written a new textbook of gynecology that represents a most important addition to the English literature. The book differs from the usual text in that emphasis is placed on the pathologic and endocrinologic aspects of gynecologic disorders rather than on operative procedures. As a matter of fact the technique of gynecologic operations is entirely omitted. The author is well suited to write this type of text in that he has achieved considerable reputation in these fields because of original investigative work.

Diagnosis and treatment are emphasized throughout the book making it one of practical value to the practitioner. The usual chapters on anatomy, history taking and methods of examination are limited to essentials whereas the functional disorders are described in considerable detail. All of the important gynecologic syndromes are well illustrated. The illustrations on gross and microscopic pathology are particularly fine and include the many varieties of ovarian tumors, a field to which the author has contributed greatly. The granulosa cell and Brenner tumors are described and illustrated in much detail.

Valuable chapters on backache in women and gynecologic organotherapy are included in the text as well as a short chapter on the value and technique of endometrial biopsy and the suction curettage.

This new text, one which emphasizes medical rather than surgical gynecology, is highly recommended to the profession and should prove of great practical value to the practitioner.

ALEXANDER H. ROSENTHAL

Popular Cardiology

Your Heart. By Joseph M. Stein, M.D. New York, Alliance Book Corporation, [c. 1941]. 240 pages. 8vo. Cloth, $2.75.

IT has always been an open question to this reviewer as to how much value books written for the laity on medical subjects possess. The volume in hand contains a good deal of reliable information and some sound advice. A study of the effect of books of this type would be helpful in the field of education in public health. In the chapter on danger signals, the author appears to exaggerate the importance of so called "functional heart trouble" and states that "It is simply the forerunner of the real thing". . . . It is disappointing to find a chapter in which angina pectoris is described as a disease of the heart when in the modern point of view it is considered a symptom resulting from one of several diseases affecting the coronary arteries. The author's description of angina pectoris is, to say the least, lurid. Very few patients

actually suffer the agony that he depicts. This tendency to overdramatiization is exemplified in the title of the next chapter "The Coronary Killer." If books for the laity on medical subjects are to have value in public health education they must be written in an entertaining style and yet not resort to exaggerated descriptions of human suffering in order to catch the public eye.

E. P. MAYNARD, JR.

Varicosities

Diseases of the Veins and Lymphatics of the Lower Extremity. By C. H. Verovitz, M.D. Boston, Christopher Publishing House, [c. 1941]. 392 pages, illustrated. 8vo. Cloth, $6.00.

THIS treatise covers the subject of the title in a comprehensive manner. As with other texts on the same subject the customary chapters are devoted to anatomy, histology, and physiology. Phlebitis especially is discussed at great length. Under etiology of thrombophlebitis, the author states "a common condition occurring in ten percent of all patients suffering with varicose veins." We feel that this is an over statement from any point of view; the author could have been more correct had he added to his statement "at some time in the course of the disease."

On page 41 quoting Kaester he states that "the infection in phlebitis is carried by the venous lymph channels. He maintains that phlebitis is in reality a lymphangitis of the veins." We feel that this clear cut statement is highly commendable and in complete accord with the most modern ideas.

On page 59 the author reports the treatment of 31 cases of phlebitis in which leeches were employed. It may be that he has discovered virtue in an antiquated method of therapy. From the evidence which is adduced one does not feel that his argument for the rejuvenation of this method of therapy is warranted.

The remainder of the text on ulcers and conditions of the lymphatics is clear and commendable.

The text, as a whole, is an addition to the literature on veins and lymphatics.

ROBERT F. BARBER

Fear Therapy

Don't Be Afraid! How to Get Rid of Fear and Fatigue. By Edward S. Cowles, M.D. New York, McGraw-Hill Book Company, [c. 1941]. 229 pages. 8vo. Cloth, $2.00.

THE subtitle of this book reads "How to get rid of fear and fatigue." It is the thesis of the author that fear is at the bottom of most mental illness, and that fear is exhibited especially when the individual is fatigued. The aim of the book is to make clear how fear arises, how it operates and how it can be removed. The author has been the originator and director of the "Body and Mind Clinic" since its inception in 1921. He describes this project in detail.

The book is written with an eye toward attracting the public. Its style is florid. There is an appeal to the profession to attend the "Body and Mind Clinic," so as to learn the method of therapy to be applied to the understanding and correction of fear.

STANLEY S. LAMM

Medicine in China

Chinese Lessons to Western Medicine. A Contribution to Geographical Medicine from the Clinics of Peiping Union Medical College by I. Snapper. New York, Interscience Publishers, Inc., [c. 1941]. 380 pages, illustrated. 8vo. Cloth, $5.50.

DR. SNAPPER, a distinguished student of medicine, has written a splendid book on medicine in China. Much of it deals, naturally, with tropical diseases. This is not all the author covers, for many disorders seen in this country are carefully reviewed and contrasted with their manifestations in China. This is an extremely worthwhile book.

ANDREW M. BABEY

Protection Against Infectious Diseases

Communicable Disease Control. A volume for the Health Officer and Public Health Nurse. By Gaylord W. Anderson, M.D. and Margaret G. Arnstein, R.N. New York, The Macmillan Company, [c. 1941]. 434 pages. 8vo. Cloth, $4.25.

THE epidemiologist and the public health nurse have pooled their resources in producing this fine volume.

Part One of the book deals with the broad, basic principles and methods of control, chapters being devoted to such sub-

ject matter as: the infectious process, administrative practices and epidemiological methods. In Part Two, the application of these principles and methods in the control of each communicable disease is discussed.

While the primary emphasis is placed on the community, control measures as they directly affect the individual patient are not neglected, and space is given to the discussion of nursing care.

F. L. MOORE

Shock Therapy

Shock Treatments In Psychiatry: A Manual. By Lucie Jessner, M.D., and V. Gerard Ryan, M.D. New York, Grune & Stratton, [c. 1941]. 149 pages. 8vo. Cloth, $3.50.

THIS is a treatise on the various "shock treatments" that have entered the psychiatric field in the past few years. It comprehensively covers the ground, describing in detail the utilization of insulin shock, metrazol convulsions as a form of therapy, and the more recent method, that of inducing convulsions by electric shock. It presents an unbiased resume of the entire subject. It does not offer any adequate scientific basis for these methods of therapy, which remains a post-hoc propter-hoc approach. Since these methods of treatment will continue unless replaced by others with a more rational basis, it is our opinion that this book will be of value to every practitioner.

A. M. RABINER

War Medicine

Medical Diseases of War. By Sir Arthur Hurst, M.A. Second edition. Baltimore, Williams & Wilkins Company, [c. 1941]. 427 pages, illustrated. 8vo. Cloth, $5.50.

IN this second edition, the author has incorporated more than the experiences of the first World War. The present volume includes medical war conditions and diseases found in medical war casualties of the present war. A large part of the volume describes the nervous conditions found and the methods of treating these conditions. The author has included diseases due to infections and parasites, internal and external. Trench mouth, typhus, typhoid, dysentery, jaundice, malaria, tetanus, meningitis, and nephritis are thoroughly reviewed. As all medical men will be involved in the care of soldiers for some time to come, this volume will serve well in adding to our knowledge of medical diseases of war. It is a valuable contribution.

HENRY M. MOSES

Toxemias of Pregnancy

The Toxemias of Pregnancy. By William J. Dieckmann, M.D. St. Louis, C. V. Mosby Company, [c. 1941]. 251 pages, illustrated. 8vo. Cloth, $7.50.

DIECKMANN has done us all a service in assembling and correlating so far as possible all the physiological and pathological data pertinent to toxemia of pregnancy. His search has been exhaustive, and investigators will find the material assembled in a very practical way in this one volume. There is nothing new of clinical value. The section on normal and abnormal physiology is instructive and well presented. This is not a book for the casual obstetrician but for the teacher.

CHARLES A. GORDON

More International Clinics

The New International Clinics. Original Contributions: Clinics, and Evaluated Reviews of Current Advances in the Medical Arts. Edited by George M. Piersol, M.D. Vol. III. New Series Four. Philadelphia, J. B. Lippincott Company, [c. 1941]. 300 pages, illustrated. 8vo. Cloth, $3.00.

A NUMBER of stimulating papers covering a wide range of subjects appears in this latest number of the *International Clinics*. Julius Bauer has a good review of constitutional pathology, and David Barr presents many interesting facts in discussing the pathogenesis of obesity. One of the best articles is Cantarow's annual review of recent advances in biochemistry.

Volume IV. New Series Four [c. 1941]. 314 pages, illustrated. 8vo. Cloth, $3.00.

THE present number of The International Clinics is distinguished by some splendid papers on heart disease—one by Keefer on congestive failure, and two other papers from the University of Minnesota.

ANDREW M. BABEY

BOOKS RECEIVED *for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.*

Clinical Hematology. By Maxwell M. Wintrobe, M.D. Philadelphia, Lea & Febiger, [c. 1942]. 792 pages, illustrated. 8vo. Cloth, $10.00.

Nasal Sinuses. An Anatomic and Clinical Consideration. By O. E. Van Alyea, M.D. Baltimore, Williams & Wilkins Company, [c. 1942]. 262 pages, illustrated. 8vo. Cloth, $6.50.

Essentials of General Anaesthesia with Special Reference to Dentistry. By R. R. Macintosh, M.D., and Freda B. Pratt Bannister, M.D. Second edition. Oxford, England, Blackwell Scientific Publications, Ltd., 48 Broad Street, [c. 1941]. 8vo. Cloth, 25/.

Diseases of Metabolism. Detailed Methods of Diagnosis and Treatment. A Text for the Practitioner. Edited by Garfield G. Duncan, M.D. Philadelphia, W. B. Saunders Company, [c. 1942]. 985 pages, illustrated. 4to. Cloth, $12.00.

Methods of Treatment in Postencephalitic Parkinsonism. By Henry D. von Witzleben. New York, Grune & Stratton, [c. 1942]. 164 pages. 12mo. Cloth, $2.75.

Symptom Diagnosis, Regional and General. By Wallace M. Yater, M.D. Fourth edition. New York, D. Appleton-Century Company, [c. 1942]. 900 pages. 4to. Cloth, $10.00.

The Fundamentals of Internal Medicine. By Wallace M. Yater, M.D. New York, D. Appleton-Century Company, [c. 1941]. 1021 pages, illustrated. 8vo Cloth, $9.00.

Textbook of Embryology. By Harvey E. Jordan, M.A., and James E. Kindred, M.A. Fourth edition. New York, D. Appleton-Century Company, [c. 1942]. 613 pages, illustrated. 8vo. Cloth, $6.75.

Anatomy of the Nervous System. A Textbook from the Developmental and Functional Point of View, and Atlas of the Nervous System of Man. By Olaf Larsell, M.A. New York, D. Appleton-Century Company, [c. 1942]. 443 pages, illustrated. 8vo. Cloth, $6.50.

Four Treatises of Theophrastus von Hohenheim Called Paracelsus. Translated from the original German, with Introductory Essays by C. Lilian Temkin and others. Edited by Henry E. Sigerist. Baltimore, Johns Hopkins Press, [c. 1941]. 256 pages. 8vo. Cloth, $3.00.

Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases. Sixth edition by Richard P. Strong, M.D. In Two Volumes. Philadelphia, Blakiston Company, [c. 1942]. 1747 pages, illustrated. 8vo. Cloth, $21.00 set.

A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology. By Torald Sollmann, M.D. Sixth edition. Philadelphia, W. B. Saunders Company, [c. 1942]. 1298 pages. 4to. Cloth, $8.75.

OLD TRAILS VIII

—Concluded from page 143

Of great interest is the recent work of Frei and others which has shown that the chancroid may cause secondary symptoms and may give a skin reaction; which reaction also differentiates chancroidal bubo from other forms.

The so-called tropical disease known as granuloma inguinale has been shown to occur spontaneously in the United States. In the past it has doubtless posed as phagedenic chancroid, etc.

The subject of the reaction of the tissues to the toxins of micro-organisms is so vast and intricate that it must be passed over as succinctly as possible. Richet's studies on anaphylaxis appeared during 1902-9 and at the same time Pirquet and Schick were at work on allergy, Pirquet having described serum sickness in 1905. In 1907 Besredka introduced the notion of desensitization and of anti-anaphylaxis. The subject of food idiosyncrasies was brought in association with this lore about 1911 and has since received due attention; considerable progress has been made along this line. In 1925 Besredka introduced his theory and practice of local "immunity" without the intervention of antibodies in the blood, and the underlying principles have been abundantly utilized in practice, both for diagnosis and treatment of disease, including prophylaxis. Naturally the beginnings in this field go back into the previous century with the pioneer work of Pasteur, Koch, Behring, and others, and the work of the present century must be concerned largely with consolidation and exploitation.